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U.S. FOREIGN ECONOMIC ASSISTANCE AND THE BALANCE OF PAYMENTS 1954 - 1962

Section 1
Introduction

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By Laurence E. Lynn

Section 1
Introduction

Very little detailed analysis of the impact which economic aid has on the U.S. balance of payments has been published as of this writing. The main analytical and quantitative effort is that in Chapter VI of The United States Balance of Payments in 1968, published by The Brookings Institution in August 1963.[1] The primary concern of this chapter is to estimate the additional impact on the U.S. balance of payments which will result from projected increases in U.S. economic aid between 1961 and 1968. Hence an attempt is made to estimate what the impact actually was in 1961. The answer is arrived at by a series of separate calculations.

First, the proportion of economic aid disbursements which resulted in a dollar outflow is estimated. For expenditures on commodities, AID publishes data on source of procurement. The amount attributed to non-U.S. procurement is taken to represent dollar outflow. Where funds for technicians, participants and other purposes are spent cannot be accurately determined, however. The Brookings study supplies a set of assumptions, the bases of which are unstated, concerning the initial use of the funds available under these headings. In addition the study assumes that one hundred per cent of cash transfers represent a dollar outflow.

That amount of aid which represents a dollar outflow is assumed to be spent as ordinary export earnings. The patterns of

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1. Walter S. Salant, et al, The United States Balance of Payments in 1968, (Washington D.C.: The Brookings Institution, August 1963), pp. 155-190.

expenditure of these earnings are estimated using "feedback ratios," the basis of which is a matrix of trade relationships computed from data on world trade published by the United Nations.[1] Separate feedback ratios are estimated for each of the four major aid-receiving regions, and these ratios are used to estimate the proportion of the outflow of aid dollars which returns to the U.S. via trade channels.

"Substitution problem"

It is acknowledged that the amount of aid which does not constitute dollar outflow nevertheless does not represent a net addition to U.S. exports. Some of the purchases paid for with U.S. assistance would have been made anyway utilizing other funds; aid merely substitutes for these funds and frees them for alternative uses. There is no way of determining how much U.S. economic aid substitutes for other funds. The Brookings study fills the void by estimating--"guessing" in their words--by regions the proportion of commodity expenditures which substitutes for other funds. The funds so released are assumed to be spent as normal export earnings. The amounts which are assumed not to substitute for other funds are treated as net additions to U.S. exports.

The result arrived at in the Brookings study--53% of U.S. economic aid expenditures in 1961 returned to the U.S. directly or indirectly--is not really susceptible to step by step verification using other methods. Essential gaps in the knowledge required by their approach must be fulfilled by assumptions which cannot be more than informed guesses. Assumptions regarding the extent of substitution, which are among the most crucial aspects of the

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1. On the construction of the ratios and their use see Salant et al, ibid., pp. 170-171, 275-277.

study, though plausible, are particularly difficult to evaluate in the absence of alternative sources of evidence.

Our study constitutes an alternative conceptual and quantitative approach to the problem. Moreover it is considerably more comprehensive in scope. We will present evidence, based on results derived from regression analysis, concerning the impact of U.S. economic aid expenditures on U.S. exports to aid recipients for the years 1954-1962. We will focus on what effect, if any, the policy of tying U.S. aid to the purchase of U.S. goods and services has had on the volume of current U.S. exports attributable to current aid expenditures.

For this evidence to be conclusive as to the overall balance of payments impact of economic aid disbursements, our results would have to be supplemented by research into the uses of those aid proceeds not spent by the recipient directly on U.S. exports. Numerous conceptual and statistical problems prevented our devoting adequate attention to this aspect of the issue with the time and resources available to us. Available evidence suggests, however, that most of the aid funds not used to purchase U.S. exports have either been added to official or private dollar reserves in the recipient country--at least temporarily--or channeled via trade to European foreign exchange markets, where they potentially add to the "dollar surplus."[1] Some of the aid, however, has been used to make purchases in countries which will in turn spend at least

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1. In the Brookings study, estimates of the balance of payments costs of U.S. economic aid were made assuming that "...the United Kingdom, the European Economic Community countries and the rest of Western Europe did not spend increments in their foreign earnings, but instead accumulated reserves...." See pp. 275-277.

part of the proceeds in the U.S. To the extent that this is true, our statistical results understate the actual increase in U.S. exports resulting from the aid. We shall return to this problem in Section 4.

We have not considered the balance of payments effects of military assistance. Military aid programs are sufficiently unique to warrant a separate research effort. Moreover, much of the data required by our statistical models is classified in the case of military aid. Nor have we considered the distribution of surplus agricultural commodities under Public Law 480, which also involves special factors warranting separate, detailed consideration.

The justification for measuring the export-generating effects of economic aid dollars considered separately from other foreign exchange resources is not altogether obvious. Money is fungible, and attaching economic meaning to an arbitrary accounting classification, which the designation "U.S. aid" may appear to be, could not be justified. For a number of reasons, however, we may find that the net impact of economic aid expenditures on U.S. exports--that is, the impact after allowance has been made for the extent to which aid substitutes for other funds--is greater than that of other foreign exchange receipts, even if the aid is untied. The reasons are based mainly on institutional factors, which are of two general types: (1) those which are characteristics of the aid programs themselves, and (2) those which are characteristics of the countries receiving aid.

Aid does not appear as manna to the recipient. The negotiation of aid agreements, the disbursement of funds, and the

accounting for their use involves a wide variety of formal and informal contacts. The fact that prior approval of commodity purchases is required, necessitating the establishment of working relationships with United States officials as well as private banking and commercial interests, suggests that whatever requests for financing are drawn up may be influenced by these procedures and relationships, presumably to the advantage of U.S. trade.[1] Moreover, traditional preferences may be altered in such a way that U.S. trade financed by means other than U.S. aid is favorably stimulated.

Secondly, underdeveloped countries utilize a variety of means to finance their imports. Part of their foreign exchange earnings consists of currencies with limited convertibility. A significant portion of their annual foreign purchases must be financed with short- or medium-term credits. In general, their earnings of dollars and other hard currencies are insufficient relative to the demand for them. Numerous controls must be enforced to insure that foreign exchange reserves are not drained away and that current receipts of hard currencies are judiciously allocated. Under these circumstances, the more aid that is available relative to other means of financing imports, the more trade a country may feel it can conduct with the United States, whose traders almost always insist on dollar settlement. In other words, underdeveloped

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1. Robert E. Asher, "The Foreign Aid Expenditures of the United States," in Federal Expenditure Policy for Economic Growth and Stability, Papers Submitted by the Panelists Appearing Before the Subcommittee on Fiscal Policy, Joint Economic Committee, U.S. Congress, 85th Cong., 1st Sess., p. 577.

countries do not finance their imports with a homogeneous fund of currencies. They must use, instead, a variety of methods, among which the degree of substitutability in carrying out trade with the U.S. may be less than perfect.

The fact that aid dollars may represent unique opportunities to the recipient offers the main hope that tying aid will be successful in reducing the adverse balance of payments impact of aid expenditures. The tied aid policy means that countries typically are faced with the necessity of attributing a larger share of aid proceeds to purchases from U.S. suppliers than they would have in the absence of the procurement restrictions. The recipients might respond by seeking aid financing for purchases which they normally would have financed with other sources of foreign exchange. If substitution were perfect, the real impact of aid on U.S. trade with the recipients would be virtually unchanged despite the tie. The opportunities for substitution, however, may be lacking or limited. The volume of non-aid-financed trade with the U.S. may be too small relative to the amount of aid. Or the kinds of activities financed with aid might not have substitutes among the rest of a country's imports which would qualify for aid financing. Under these circumstances, tying aid could lead to an increase ceteris paribus in the total amount of U.S. exports to the aid recipient.

Our study is organized as follows. In Section 2 we summarize the salient aspects of U.S. economic aid programs from the early 1950's to the present. We discuss both the amounts of aid involved and the various policies and procedures which have guided their allocation and disbursement. In Section 3 we discuss the problems

which must be solved in developing a valid quantitative study of the effects of aid on trade, along with the solutions we have adopted. Section 3-a is concerned with the development of an adequate conceptual framework. In Section 3-b we discuss difficulties of a statistical nature and describe the development of our statistical models. The selection of countries to be included in the study and sources of data are described in Section 3-c. In Section 4 we present our results and analyze them in detail. A summary of our conclusions and policy recommendations is found in the concluding Section 5.

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ECA-Foreign Assistance

Section 2

United States Economic Assistance Programs: Origins, Policies, Procedures

By Laurence E. Lynn

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Section 2

United States Economic Assistance Programs: Origins, Policies, Procedures

Introduction

The origin of large-scale United States economic assistance to low income countries lies in the series of emergency situations existing in many of these countries in the late 1940's and early 1959's. Perhaps the chief stimulus was the Korean conflict with its portents of future cold war confrontations at the world's trouble spots. The problem of Kashmir which divided India and Pakistan, the possibility of conflict in Arab-Israeli relations, the potential threat of Communist China and the Soviet Union to the countries possessing common borders with them, and similar problems elsewhere made the United States Government anxious to insure that these countries were able to acquire the imports necessary to prevent economic collapse and to maintain a military establishment adequate to forestall threats of Communist aggression. Gradually other countries in which economic and political instability threatened were brought into the program. The U.S. also began using dollar grants to bargain for base privileges and rights of access and to achieve other foreign policy objectives.

There is little to indicate that there initially existed among Congressmen or policy makers a national concern with raising per capita standards of living through foreign aid. Nor are there grounds for believing that the success of the Marshall Plan was a source of inspiration for extending aid to the underdeveloped countries. On the contrary, the nearly total neglect of Latin America, where cold war incidents seemed remote, and the

fears expressed in Congress that the development-oriented technical assistance program might lead to further public assistance for investment activities are evidence that cold-war tensions provided the raison d'etre for large scale foreign aid as well as the criteria for its allocation.[1]

Because the programs began as ad hoc responses to emergency situations, the concepts and procedures which guided the disbursement and utilization of the funds throughout most of the period, with the exception of the Development Loan Fund and the technical assistance program, seem to have involved little systematic planning. Moreover, prior to the establishment of the Agency for International Development in 1961, development loans and technical assistance were only a small, though increasing, part of the total foreign aid effort. (See Table 2 - 1.) Most of the disbursements were highly concentrated in crisis areas according to established political priorities. The availability of funds "adequate" to achieve foreign policy objectives---with adequacy for the most part being undefined---was apparently the chief justification for the size of the programs.[2]

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1. William Adams Brown, Jr., and Redvers Opie, American Foreign Assistance (Washington: The Brookings Institution, 1953), pp. 393, 417.

2. There has been a continuing debate over appropriate criteria for allocation foreign aid. For a review of many of the salient points see Thomas C. Schelling, "American Aid and Economic Development: Some Critical Issues," International Stability and Progress (New York: The American Assembly, 1957), pp. 136-140. The most recent contributions are Paul N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries," Review of Economics and Statistics, Vol. XLIII (May 1961), pp. 107-138 and Gustav Ranis, "International Aid for Underdeveloped Countries: A Comment," Review of Economics and Statistics, Vol. XLIV (November 1962), pp. 464-466.

The International Development and Assistance Act of 1961, however, reflected a growing awareness of the challenge posed by the Communist "economic offensive." The new aid agency was mandated in Section 102 "to help make a historic demonstration that economic growth and political democracy can go hand in hand...." Greater emphasis is to be given to assisting long range development plans and responding to self-help efforts on the part of the recipients and to encouraging private investment capital to participate in development. On the other hand, the largest part of the authorizations and appropriations was under the kinds of categories which had been characteristic of the Mutual Security Acts, though a more systematic evaluation of the best uses of these funds may accompany their allocation.

In this section we will provide a brief account of the concepts and operations of the U.S. economic aid programs since 1954. We intend this discussion to serve as background for the empirical study to be described in the following sections.

General Purpose Assistance

Most of the economic aid to underdeveloped countries has been authorized and appropriated under what may be considered as general purpose categories: defense support (up to fiscal year 1961), special assistance (1958-1961), contingency fund (1958-) and supporting assistance (1961-). The defense support and most of the supporting assistance funds have gone to those countries on the periphery of the Sino-Soviet bloc which have been committing a relatively large proportion of their resources to the maintenance of standing armies. Special assistance funds are programmed "to achieve special political, economic, humanitarian, or other objectives . . ." which can not be gained from using other

funds.[1] Contingency funds are made available to the President to use in case of some unforeseen emergency. "Experience has shown that the most likely use of these funds is to provide additional aid to countries receiving supporting assistance."[2] Experience has also shown that most of the funds under all of these categories are used to finance general commodity import programs; in effect they are used to underwrite balance of payments deficits. For this reason we shall regard them as general purpose funds in contrast to the development assistance and technical assistance funds which are more specifically oriented.

Table 2 - 1 presents a breakdown of total aid obligations to the Far East, the Near East, Africa and South Asia, and Latin America by authorization category for fiscal years 1956-1962. For the period as a whole, 60.3% of all obligations have been included in general purpose categories. If 1962 is excluded the proportion is 68.6%. If similar data for earlier years were available for inclusion, the figures would probably be higher. The figures in Table 2 - 2 give a breakdown of the obligations by project and non-project classification. Non-project programs are those which are not tied to any particular activity and which, from the point of view of the United States, may be characterized as general purpose. Moreover, the project funds have financed many activities which were only vaguely defined. These figures, therefore, further testify to the general purpose nature of most aid-financed purchases.

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1. Mutual Security Act of 1959, Hearings before the Committee on Foreign Relations, U.S. Senate, 86th Cong., 1st Sess., 1959, p.25.
2. Foreign Assistance Act of 1962, Hearings before the Committee on Foreign Affairs, U.S. House of Representatives, 87th Cong., 2d Sess., p. 16.

Table 2 – 1

United States Economic Aid Obligations by Region and Authorization Category, Fiscal Years 1956-1962

(millions of dollars)	1956	1957	1958	1959	1960	1961	1962
Far East	763	810	616	581	601	520	399
Defense Support	724	769	543	540	512	440	
Special Assistance			12	9	3	3	
Supporting Assistance							271
Development Assistance and Loans	4	5	27	119	52	44	62
Development Grants							66
Technical Assistance	34	36	33	33	33	33	
Other	1	1	-	-	-	-	-
Near East, Africa, South Asia	452	472	422	765	873	954	1437
Defense Support	287	226	181	218	229	228	
Special Assistance			70	186	182	207	
Supporting Assistance							312
Development Assistance and Loans	109	197	122	305	399	458	846
Development Grants							167
Technical Assistance	56	49	49	56	63	62	
Other	-	-	-	-	-	-	112
Latin America	72	79	70	103	96	252	477
Defense Support	44	49	-	-	-	-	
Special Assistance			35	24	31	82	
Supporting Assistance							104
Development Assistance and Loans			5	44	29	133	190
Development Grants							18
Technical Assistance	28	30	30	34	36	36	
Other	-	-	-	-	-	-	165

Source: ICA and AID, Operations Report, various years.

Table 2 - 2

United States Economic Aid Obligations
by Region and Type of Activity, Fiscal Years 1956-1961

(millions of dollars)	1956	1957	1958	1959	1960	1961	1962
Far East							
Project	210	280	179	153	108	66	124
Non-Project	555	530	432	428	441	410	275
Near East, Africa, South Asia							
Project	128	166	108	93	109	118	659
Non-Project	323	306	218	366	365	378	778
Latin America							
Project	47	56	42	36	40	44	141
Non-Project	25	22	23	22	27	75	336

Source: ICA and AID, Operations Report, various years.

Perhaps the key principle underlying the programming of these funds, at least prior to fiscal year 1959, was that of guaranteeing the recipients an amount of aid sufficient to assure them in advance that their basic dollar or local currency requirements would be met.[1] These funds have tended, therefore, to be concentrated in a relatively few countries, constituting in some cases their major source of foreign exchange. The agreed-upon levels were not necessarily based on carefully constructed foreign exchange budgets. Frequently they were related to security concepts, though it could not always be understood why the chosen amounts were better suited to the needs than some lesser or greater amounts.[2] Economic benefits tended to be regarded as incidental or accidental. As one ICA Director put it, "We are always hopeful that every country in which we are giving aid, military or otherwise, will get in a better and better economic position. Some, we are sure will; some, of course, look doubtful at the present time, but we are always hopeful."[3]

The relative importance of the guaranteed level of aid concept has apparently declined, however, both because the relative importance of the general purpose categories is declining and because more sophisticated programming concepts are being considered.

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1. Mutual Security Act of 1957, Hearings before the Committee on Foreign Relations, U.S. Senate, 85th Cong., 1st Sess., p. 248.

2. An outline of the procedures, but not the specific criteria, involved in arriving at a decision as to the level of defense support to be provided to a country is found in Mutual Security Act of 1957, Senate, pp. 491-493. A somewhat more satisfactory account (past levels of imports are specifically mentioned as a factor considered in determining the need for aid) is found in Mutual Security Act of 1959, Senate, p. 20.

3. Mutual Security Act of 1957, Senate, pp. 64 and 245.

General purpose funds have been disbursed almost exclusively as grants, which carry no cost service or amortization requirements, rather than loans. On the other hand, procedures have been designed to avoid the discrimination which would accompany the distribution of dollars to importers as an outright gift.[1] After a level of aid for a particular country has been decided upon, the country draws up requests for procurement authorizations (PAs) to be issued against these funds. These requests are submitted through U.S. aid missions in the recipient country and must be reviewed and approved by aid officials in Washington. When approved the PA constitutes authority for the recipient government to authorize imports of the commodities specified in the PA up to the amount requested within a certain period of time. At the time that a PA is approved, the aid agency issues a letter of commitment to a bank designated by the recipient government to the effect that the U.S. Treasury will reimburse it for payments to suppliers made under the letter. The recipient government notifies potential importers of these commodities that applications for import licenses may be submitted.[2] Applications are reviewed by the recipient government with the participation of U.S. aid officials, and approved applicants are notified. They may then apply to

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1. Robert E. Asher, Grants, Loans and Local Currencies, (Washington: The Brookings Institution, 1961), p. 8. A clear and concise summary of the procedures for general commodity imports is contained in Mutual Security Act of 1959, Senate, pp. 420-422.

2. There have been cases of corruption in the sale or auction of import and foreign exchange licenses, however, so that the problems of discrimination and favoritism have not been avoided entirely.

their bank for a letter of credit under which payment will be made to the supplier. The importer must "pay for" the foreign exchange by depositing an equivalent sum of local currency, at previously agreed-upon exchange rates, with the local bank. These local currency accounts are known as "counterpart" accounts which, though owned by the recipient government, can be used only for purposes agreed to by the United States.[1]

Cash transfers represent a substitute procedure by which aid is disbursed when the PA system described above "is clearly not feasible if program objectives are to be met without extreme delay."[2] When the recipient does not have an exchange control system, it may be difficult to induce importers to go through the red tape necessary under the PA system in order to get dollars. Also, in some cases the use of the PA system with relatively large amounts of U.S. aid encourages corruption in the issuance of import licenses.[3] Under the cash grant procedure, dollars are transferred to the recipient's central bank to be distributed through the foreign exchange market to importers or to be used as backing for a local currency loan to the recipient government by the central bank.

A distinction has frequently been made among general purpose aid programs according to whether their immediate objective is

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1. With the exception of Section 402 counterpart, which resulted from the sale of agricultural commodities under Section 402 of the Mutual Security Act of 1954 (as amended), ten per cent of these funds is to be made available to the United States for meeting its own local expenses.

2. Agency for International Development, The Application of Source-Origin Limitations on Cash Transfers for Local Cost or Balance of Payments Financing, mimeographed, p. 1.

3. Mutual Security Act of 1960, Senate, pp. 324-326.

direct balance of payments support or support of local government budgets. The latter type of program seems in effect that the use of the counterpart represents the "cutting edge" of the aid program. This kind of program is desirable when recipient governments are incapable of mobilizing resources internally.[1] Though the PL 480 system has typically been used to obtain the local currency, a more recent procedure has been to disburse the funds as a cash transfer. The use of this procedure is designed to establish a clear distinction between balance of payments support and budget support programs, and to avoid unnecessary AID involvement in import programs when they are not the purpose of the aid.

Technical Assistance

The purpose of the technical assistance program was to provide countries with trained personnel, educational services, technical advice and information, and small amounts of goods and equipment for demonstration projects to aid them in their development efforts. The sums of money involved were not large. Though attempts were made to divert the funds to other uses in times of foreign exchange crisis, the presumption is that the direct expenditure of these funds was relatively uninfluenced by extraneous factors. The influence of the technical assistance program on trade, however, may have been larger than is indicated by the amounts of funds involved, due to the "educational" effects of the programs.

Development Assistance

Economic development has always been one of the objectives

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1. Outlook for the United States Balance of Payments, Joint Economic Committee, p. 64.

mentioned in connection with our aid program. Prior to the establishment of DLF, however, little concerted effort was devoted to promoting this objective outside of the technical assistance program. Though general purpose as well as development assistance funds were used for highways, harbors and hospitals, particularly in countries such as Taiwan, Israel and India, a centrally directed effort on behalf of development activities was lacking. A principle motivation for establishing the DLF was to provide a concrete objective for at least part of the aid program and "to put an end to the hasty, and frequently economically unwise commitment of funds for political reasons."[1] Financing was to be provided for clearly defined and technically sound projects which would make some tangible contribution to a country's material welfare.

Extending aid specifically for development activities is in effect a restriction on the use of aid proceeds in comparision with the policies governing general purpose programs. The issue of substitution is raised, therefore, since there is no presumption, as there may be with other programs, that the purchases financed are marginal relative to the receipt of aid. In considering this issue it is instructive to distinguish between two types of situations which arise in practice: a) the U.S. assumes the full cost of a relatively self-contained project; and b) the U.S. jointly finances development activities, or participates in fi-

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1. Operations of the Development Loan Fund, Fourteenth Report by the Committee on Government Operations, U.S. House of Representatives, House Report No. 1526, 86th Cong., 2d Sess., p. 20.

financing development projects. Under the Mutual Security Acts the aid agency avoided the latter type of program for the most part,[1] but evidence suggests that AID will take an increasing interest in such ventures.[2]

With respect to the financing of more-or-less self-contained projects, U.S. policy has been to determine if other sources of financing are available for the activities described in the loan application. This has usually involved consultation with the United States Export-Import Bank and the International Bank for Reconstruction and Development. It has also involved deciding whether the country was able to finance the project or program out of its own resources. If U.S. financing appears indispensable to the implementation of a worthwhile project, the aid agency

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1. On one occasion, however, it was discovered that we were jointly financing a hospital with the Soviet Union. Co-mingling of United States and Communist Foreign Aid, Report of the Committee on Government Operations, U.S. House of Representatives, House Report No. 1907, 87th Cong., 2d Sess.

2. Section 201(e) of the Foreign Assistance Act of 1961 (as amended) specifically recognizes instances in which advance commitments to participate in multilateral development financing will be in the national interest. In testimony before Congress, Henry R. Labouisse, chairman of the President's task force on foreign economic assistance, noted, "The President's message of March 22 /1961/ called for 'country plans---- carefully thought through programs tailored to meet the needs and the resource potential of each individual country instead of a series of individual, unrelated projects....' We propose to have each recipient identify its own total requirement for a given period ahead---what it needs to move forward, what are the necessary priorities, what can be drawn from national resources, and what external assistance is required." International Development and Security, Hearings before the Committee on Foreign Relations, U.S. Senate, 87th Cong., 1st Sess., p. 148.

considers approving the loan.[1] Hence, at least in theory, serious efforts are made to determine that the activity financed is marginal and that the recipient is not substituting aid for some other source of foreign exchange.[2]

Of course not all development loans fit this model. There have doubtless been instances in which the projects financed were not marginal, though the timing of the project might have been different if other funds had been used. It is in the nature of the problem that precise determinations of this kind cannot always be made. On the other hand, U.S. aid programs used flexibly have been instrumental in getting many activities "off the ground." U.S. willingness to finance part of the local costs as well as the foreign exchange costs of a project has on occasion removed the major roadblock to its implementation. Loans have been made to cover down payments and initial costs to enable the country to get foreign supplier credits on favorable terms to cover the remaining costs.[3] On other occasions, when rela-

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1. The DLF was described by one official as "a bank of last resort." Operations of the Development Loan Fund, Hearings before the Committee on Government Operations, U.S. House of Representatives, 86th Cong., 2d Sess., p. 71. The Administrator of AID testified, with reference to a wider range of activities, "We don't want to invest our money unless private capital won't do the job, other kinds of public money won't do the job, and it is a job, nevertheless, that is worth doing in the interests of the United States to develop the country. We ought to be the last fellow." Foreign Assistance Act for 1962, Hearings before the Committee on Foreign Affairs, U.S. House of Representatives, 87th Cong., 2d Sess., p. 411.

2. The word marginal is frequently used in connection with the aid program in another sense. Activities may be considered marginal in the sense that their usefulness, measured according to some set of criteria, is questionable. Marginal as used in the text describes the activity which would have to be sacrificed if the ability to pay were reduced. An activity may be marginal in this sense but highly valuable for its contribution nonetheless.

3. Operations of the Development Loan Fund, Hearings, p. 319.

tionships between the countries permitted, the U.S. has participated in various stages in designing the projects for which the loans are approved.[1] The United States could also, by offering attractive credit terms, induce a country to undertake a project considered worthwhile by the U.S. which might otherwise be postponed or abandoned. And it is not unlikely, apart from situations in which special inducements are involved, that countries conceive of worthwhile projects or activities which can only be financed by U.S. aid.[2]

When the joint financing of activities is undertaken, the problem of determining whether the purchases nominally financed are marginal is even more complex. Formal international lending consortia are examples of this kind of situation which are likely to be increasingly important. However, the characteristics of joint financing have also been present in some development loans which were based on "earmarks" or advance commitments made when a country was trying to bring together on its own funds from various sources.[3]

It would be exceedingly difficult, if not impossible, in such cases to estimate which of the purchases represented the net

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1. There are dangers involved in persuading a country to undertake an activity for which there is no real enthusiasm. This can lead to unauthorized uses of funds or materials, a sort of "bootleg substitution."

2. An ICA staff discussion in 1957 produced a list of projects "selected at random" for which U.S. development loans were the only conceivable means of financing. Mutual Security Act of 1957, Senate, p. 458.

3. This has been true, for example, in the case of India and Turkey. Operation of the Development Loan Fund, Report, pp. 15-16, 27-29, and Hearings, pp. 178ff. Some development loans had the characteristics of general commodity import programs such as were commonly financed with general purpose appropriations. Report, p. 3.

U.S. contribution. It is probably fair to say that the entire activity is marginal relative to the total fund of foreign exchange provided for it, although bits and pieces of a development plan might be attempted in any event. In this sense the United States is making a net contribution to the development effort. A more specific statement would be unwarranted.

Economic Aid and United States Exports

The utilization of aid proceeds by underdeveloped countries prior to 1959 was not encumbered by procurement restrictions such as those adopted in 1959 and 1960. Prior to 1954 the main legislative provision on procurement prohibited bulk purchases of goods at prices higher than U.S. market prices, adjusted for differences in transport costs, quality and terms of payment. Section 510 of the Mutual Security Act of 1954 contained a provision which offered explicit sanction to third country procurement out of defense support and development assistance funds. Prior to the time when discussions concerning the advisability of tying were begun, testimony by aid officials before Congressional committees suggests that the policy of encouraging procurement from the lowest-cost source on the basis of competitive bids was followed rather aggressively, the objective at that time being to obtain "the greatest value for each dollar spent on program commodities...."[1]

Development of the Tied Aid Policy

United States officials appeared to move toward a tied aid

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1. Mutual Security Act of 1957, Senate, p. 91.

policy with reluctance,[1] and when the first restrictions were adopted, political as well as economic issues were decisive.

By October 1959 the balance of payments problem was recognized to be serious---the value of the gold stock had declined by over three billion dollars since December of 1957. Hence it was disturbing to realize that many suppliers in the prospering European countries were apparently sending their clients in underdeveloped areas to the Development Loan Fund for financing.[2] The decision "to give primary emphasis to the purchase of goods and services in the United States" with DLF loan proceeds, to apply to all loan agreements signed after October 20, 1959, was to serve as a stimulus to Europeans to expand their role in development financing as well as an aid to the balance of payments.[3] This is reflected in the legislative justification for the policy cited

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1. During the 1958 recession President Eisenhower rejected proposals to invoke Section 510 of the Mutual Security Act of 1954 (as amended) as an anti-recession measure. That section asks the President to consider the effects of offshore procurement on the domestic economy, with particular reference to areas of labor surplus. Mutual Security Act of 1958, Hearings before the Committee on Foreign Relations, U.S. Senate, 85th Cong., 2d Sess., pp. 245-246. This same provision is now part of section 604(a) of the Foreign Assistance Act of 1961 (as amended).

2. This decision "reflected the experience that borrowers frequently came to the DLF after setting up an investment project with the help of a European supplier by whom they were then advised to go to Washington for their financing. It was expected that by substantially narrowing this easy road, pressure would be exerted upon European sources to finance their own exports." Henry C. Wallich, "Government Action," in Seymour E. Harris, ed., The Dollar in Crisis, (New York and Burlingame: Harcourt, Brace and World, Inc., 1961), p. 104. See also Operations of the Development Loan Fund, Hearings before the Committee on Government Operations, U.S. House of Representatives, 86th Cong., 2d Sess., pp. 84-85.

3. In fiscal year 1959, 49% of DLF expenditures financed purchases from 19 countries listed on p. below, compared to 46% spent in the U.S. The corresponding figures for total AID expenditures were 43% and 47%. Figures for fiscal year 1960 were, for the DLF, 65% in the 19 countries as opposed to 33% in the U.S. Corresponding figures for total AID commodity expenditures were 47% and 41%. Figures are from Agency for International Development, Source of AID Commodity Procurement, (no date).

by the Managing Director of the DLF before a Congressional committee: "This change was an attempt to improve our fulfillment of the Congressional mandate that the DLF take into account, in connection with any financing transaction, 'whether financing could be obtained in whole or in part from other free world sources on reasonable terms.'"[1] It was carefully pointed out, moreover, that the balance of payments effects of the new policy would be slow in coming. It was considered likely, in fact, that the situation might get worse before it got better, since the first disbursements under existing loans had been disproportionately weighted with commodities for which the U.S. competitive position was favorable.[2]

The decision to restrict ICA procurement was much more exclusively related to the balance of payments problem. The heavy short term capital outflow which developed during the last quarter of 1960 and the sharp increase in the price of gold on the London market in October indicated to administration officials the need for a decisive defense of the dollar.[3] Adopting a limited procurement policy for mutual security funds was intended to be a highly visible and easily recognized step aimed at protecting the dollar's reputation, particularly since it involved such a sharp departure from previous U.S. views on offshore procurement.

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1. Mutual Security Act of 1960, Hearings before the Committee on Foreign Relations, U.S. Senate, 86th Cong., 2d Sess., p. 388.
2. Mutual Security Act of 1960. Hearings before the Committee on Foreign Affairs, U.S. House of Representatives, 86th Cong., 2d Sess., pp. 271-272.
3. Willich, op. cit., p. 111.

The decision was first publicized in President Eisenhower's November 16, 1960 directive on the balance of payments problem. Part 3(a) of the directive instructed the Director of ICA "to adopt a policy which will place primary emphasis on financing goods and services of United States origin in all of its activities."[1] The policy which was decided upon was set forth in a message to ICA by Secretary of State Herter on December 5, 1960, and communicated to the field on December 6 by ICA Director James Riddleberger. It prohibited the use of mutual security funds for purchases in 19 listed industrialized countries, with exceptions to be authorized according to a strict procedure.[2] Of necessity this "limited free world procurement policy" retained enough flexibility to insure an adequate supply of raw materials for aid-financed activities and to take account of inevitable special circumstances. The overall goal, as stated repeatedly before Congressional committees, has been to insure that 80% of U.S. aid proceeds is attributed to purchases from the United States.[3]

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1. Press release for publication on November 17, 1960, "Directive by the President Concerning Steps to be Taken with Respect to the United States Balance of Payments," The White House, James C. Hagerty, Press Secretary to the President, p. 5.

2. The countries were Australia, Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Luxembourg, Monaco, Netherlands, New Zealand, Norway, South Africa, Sweden, Switzerland, United Kingdom, Hong Kong. Hong Kong has since been removed from the list and Spain added.

In fiscal year 1961 through December 31, 52% of all commodity expenditures out of aid proceeds were made in this group of countries, compared to 37% made in the United States. International Cooperation Administration, Operations Report, Fiscal Year 1961, Issue No. 2, p. 48.

3. In contrast, 90% of Military Assistance Program funds was spent directly in the U.S., while the figure for World Bank Loans was about 30%. Mutual Security Act of 1960, House, p. 271; Mutual Security Act of 1960, Senate, pp. 47-48, 80.

The spirit of the tied aid policy was written into Section 604(a) of the Foreign Assistance Act of 1961. Congress directed the President not to permit offshore procurement if the adverse effects upon the economy "with special reference...(to) the net position of the United States in its balance of payments with the rest of the world," outweighed the benefits to the program of purchasing from lower cost suppliers. Section 110 of the corresponding appropriations act required the President to justify significant offshore purchases before Congress at least twice annually.

The wide-ranging administrative implications of tying aid become apparent when one considers the types of activities financed with U.S. assistance. Whereas tying development loans can be implemented by limiting consideration to those loan applications which specify the use of U.S. goods and services, restricting procurement from other AID-administered funds calls for considerably more administrative effort. Special procedures are required for insuring compliance when general balance of payments support is being provided and when the generation of local currency is the principle objective of the commitment. Aside from these activities, the U.S. aid agency finances the training of specialists, the hiring and maintenance of U.S. and foreign technicians, the costs of transporting goods, purchase of contractual services, and the stocking of commissaries. The procedures for disbursing funds for these purposes must insure compliance with the overall policy directive.

The tied aid policy was still being developed in the Spring of 1963 in the sense that satisfactory administrative techniques

were still being worked out.[1] This was particularly true of procedures for supervising the expenditure of dollars which are used for generating local currencies under methods other than the procurement authorization system. "Segregated accounts," "restricted accounts," and the irrevocable letter of credit issued to foreign central banks have been tried and evidence suggests that further experimentation will be necessary.[2]

A different type of problem is the establishment of criteria for making appropriate determinations as to the origin of goods shipped. A formula based on cost of components, modified by a list of acceptable commodities for which the cost of components concept is meaningless, was being considered.

Tying Development Loans

Implementing the tied aid policy with respect to development lending would appear to involve few difficulties. Prior to the establishment of AID, when DLF policy still emphasized covering the foreign exchange costs of well-defined projects, only those applications which gave prior assurances that U.S. goods and services would be used were accepted for screening and processing. AID policy regarding development loans has discarded the emphasis on projects in favor of considering any soundly-conceived development efforts, be they specific projects or import programs of equipment, materials or other supplies. But the procedures of accepting only those loan applications which specify U.S. procure-

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1. Outlook for the United States Balance of Payments, Hearings before the Subcommittee on International Exchange and Payments, Joint Economic Committee, U.S. Congress, 87th Cong., 2d Sess., p. 62.

2. The details of these various procedures are discussed on pp. 23-24.

ment can still be followed . The issuance of PAs can be contingent upon the United States being satisfied that true representations concerning procurement are being made on the requests for funds.

The real impact on trade is another matter, however. We will discuss this question in two parts, as suggested on p.9 above: U.S. financing of self-contained activities and joint U.S. participation in development financing.

Self-contained projects financed by U.S. aid are divided in unknown proportions between those which are marginal and those for which U.S. aid is substituting for some other source of financing. Two questions raised by tying procurement are, (1) Will relative proportions of marginal to non-marginal projects financed by the aid tend to shift in favor of a greater percentage of non-marginal activities? That is, will countries applying for loans now seek financing for more of those development activities which require U.S. goods and services but for which they would otherwise have used their own resources? and (2) To what extent will the underdeveloped countries decide upon U.S. rather than European of Japanese supplies in order to take advantage of U.S. assistance? Countries desiring financing for activities which are marginal can get no assistance for non-U.S. procurement. Their alternatives are to substitute U.S. products and services in instances in which they might have preferred non-U.S. goods or to seek loans for only those portions of the project calling for U.S. procurement, thereby reducing their aid requests. Under the recent policy, countries can convert projects which formerly would have been financed with U.S. funds only into joint financing ventures. In either case the real impact of a given level of aid on U.S. ex-

ports is increased by tying the use of the proceeds, though in the latter case this is done by cutting down the dollar flow rather than by increasing the flow of U.S. exports. Even when projects are non-marginal, however, some substitutions of U.S. for non-U.S. purchases may be necessary for the project to qualify. The real impact on U.S. exports of tying self-contained project financing will depend upon the extent to which the tendency to use U.S. rather than non-U.S. goods and services offsets the tendency to shift non-marginal activities onto the aid program.

As we pointed out previously, the problem is more complicated when U.S. participation in joint financing schemes is involved. If the total amount of U.S. aid exceeds the amount of U.S. goods that would have been purchased in support of the venture in the absence of procurement restrictions, some substitutions of U.S. for non-U.S. supplies would be required, unless some other sources of funds could be tapped to an extent that would make the use of U.S. assistance over and above the contemplated level of purchases from the U.S. unnecessary. If U.S. participation allows full scope for substitution, i.e., if the total contemplated use of U.S. goods exceeds the amount of U.S. aid involved, there is no reason to expect that it will not take place. There would be a good prospect of raising the rate of attribution but a poor prospect of affecting U.S. exports.

Tying General Purpose Aid

Though development loan expenditures have been an increasing proportion of total aid disbursements, that proportion is still relatively small. Commodity import programs on a grant basis, cash transfers and a variety of other programs make up the

bulk of U.S. assistance. It is these expenditures which are subject to the limited free world procurement policy. Procedures to implement the tied aid policy with respect to these funds are numerous and detailed, and we will consider them only in broad outline. In what follows we shall discuss the procedures under three headings: (a) Commodity procurement; (b) Cash transfers; (c) Services and miscellaneous.

(a) Commodity Procurement

Procurement of commodities with supporting assistance, development grants and contingency funds continues to be financed through the AID system. In approving requests for funds and accepting documents, source-origin limitations are enforced in order to prohibit, except in special situations, the purchase of commodities in the excluded industrialized countries. No novel procedures have been introduced.

For a large portion of these funds, the high ratio of aid to total imports by the recipient from the United States suggests that the scope for substitution is limited. The limitations might even be greater than such ratios indicate since portions of the non-aid financed trade with the U.S. are probably not suitable for aid financing. Moreover, part of the trade may be conducted via relationships and financing arrangements which are not readily abrogated.

On the other hand, if the original ICA instruction to prohibit substitutions were rigidly enforced, a serious disruption of trade patterns would be in prospect for several recipients.[1] Hence the presumption is that while some net increases in U.S. exports to these countries is likely, the nominal impact will still

1. (See next page.)

overstate the actual impact by some amount attributable to substitution.

In countries in which the scope for substitution is large, however, because of the relatively small role fulfilled by the aid, the presumption is that the recipient will take advantage of the situation and substitutions will occur to a considerable extent. In the administration of the program it would be difficult for AID officials to challenge recipient countries on the substitution issue, particularly since AID policy with respect to these programs has been to accept in considerable measure the recipient's judgement as to the best use of the aid.

That opportunities for substitution will be exploited is suggested by one method of diversion that has been discovered in administering the tied procurement policy. Significant increases have been noted in aid-financed exports of countries such as Greece, Spain and Southern Rhodesia, which are not excluded as procurement sources. These countries have apparently used the proceeds of these sales to purchase commodities of a similar type in excluded industrial countries for sale to domestic customers. Greek and Spanish steel, for example, may be sold to Pakistan under U.S. aid programs, and the dollars earned/to purchase German steel for sale to Greek and Spanish customers.[2]

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1. However, an objective of the policy is to bring about some disruption of trade patterns in a fundamental way. AID officials have testified that restricting procurement can "insure the entry of U.S. capital goods and manufactures into markets which they would otherwise be unable to penetrate on a pure price competition basis. (It forces) in some instances a change in trade patterns and an opening of commercial channels to U.S. exports which would otherwise have remained effectively blocked by tradition or exchange controls." Outlook for the United States Balance of Payments, p. 65.

2. Apparently consideration was being given by the administration to extending the list of excluded countries, probably based on events such as the ones described above. New York Times, May 11, 1963, p.28.

(b) Cash Transfers

A problem clearly exists in supervising the expenditure of the dollars disbursed as cash transfers. Funds which are to be sold in free foreign exchange markets are not easily "traced." Three distinct techniques have been proposed to deal with this problem, two of them having been abandoned as unsatisfactory.

The first proposal was to establish separate or "segregated" accounts in the recipient's commercial banks, the use of which would be supervised to insure compliance with U.S. policy. The Department of Commerce decided, however, that in its balance of payments tabulations, the amounts in these accounts would still be counted as offshore use, even though U.S. goods might be purchased with them. The most visible measure of success, the rate of attribution, would not be affected, hence the agency did not permanently adopt this procedure.

According to a second plan, the dollars would be retained in the Treasury to be paid directly to U.S. exporters and charged against the aid account of the recipient. Objections to this procedure were raised by the International Monetary Fund, which felt that such funds constituted in effect blocked dollar accounts and would conflict with the status of the dollar as a convertible currency.

The third method, which was currently in force in the Spring of 1963, is for AID to request U.S. banks to open irrevocable letters of credit in favor of the central bank of the aid-receiving country or its designee. Applications for these letters of credit must state the recipient's intention to use the funds only in conformity with U.S. procurement policy. Exporters will receive pay-

ment when the U.S. bank receives the necessary documents certifying that the supplier has proof of U.S. goods under the letter.

In circumstances when the cash transfer procedure is used, there is no good reason to expect that U.S. exports to the recipient are greater when procurement is tied than when it is not. The foreign importer is still dealing in a free foreign exchange market and has no valid reason to distinguish among the "types" of dollars he buys. An exception to this would be a case in which the scope for substitution was relatively narrow.[1] The availability of what amounts to surplus dollars might induce additional U.S. exports to take place, although there is some evidence that in such instances these dollars might be difficult to inject into trade channels.

(c) Services and Miscellaneous

The limited procurement policy applies to the variety of services procured and provided with U.S. aid as well as to a group of miscellaneous purchases involving relatively small amounts. Training of a recipient's nationals, the hiring of technicians, the procurement of contractual services, and the purchase of administrative supplies and equipment and supplies for commissaries must not involve dollar payments in or to excluded countries.

What is provided under these various headings is frequently highly specific, implying a limited scope for substitution. It is usually not relevant to speak of contractual services or hired technicians in general; services are supplied in connection with

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1. Apparently this has been the case recently in Chile.

specific tasks or projects and technical personnel are hired for specific purposes. If an increase in the use of U.S.-source personnel and services was not desired by the recipient, a more realistic alternative for the country might be to seek other means of financing these expenditures. In either instance, the objective of U.S. policy from the point of view of the balance of payments is accomplished.

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Section 5

United States Economic Aid and United States Exports: A Theoretical and Statistical Approach

By Laurence E. Lynn

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Section 3
United States Economic Aid and United States Exports: A Theoretical and Statistical Approach

a. Conceptual Problems

Introduction

The balance of payments impact of U.S. aid expenditures is the result of the actions of a wide variety of decision-making units operating within a complex environment of economic and political institutions and policies. The ultimate uses of economic aid dollars by the low-income countries depend upon the nature and effectiveness of trade and payments controls, domestic fiscal and monetary policies, and the sophistication of local institutions as well as on competitive conditions in world markets and the preferences and customs of local traders. These factors vary widely from country to country and from one time to another. Moreover, the effects on U.S. trade attributable to aid may extend over a considerable period of time. Assistance programs which are successful in promoting economic growth or in forestalling serious disruption or collapse of a recipient's economy preserve and enlarge markets for U.S. goods in succeeding years, quite apart from the way in which the aid dollars themselves are used. Hence, assessment of the effect of aid on the U.S. balance of payments properly involves consideration of both the ultimate uses of the aid dollars and of the effect of aid in permanently altering the recipient's economy, i.e. both short- and long-run factors are involved.

Current concern with the balance of payments problem insofar as aid is involved is generally based on the short-run problem of how the expenditure of the aid funds themselves affects U.S. exports.

Our objective has been to obtain quantitative evidence as to the volume of U.S. exports to the recipients which can annually be attributed to U.S. aid expenditures within the same year. U.S. aid is only one of the variables affecting U.S. exports to the recipient countries, however, and in a great many instances it is far from the most important one. A satisfactory approach to this problem must measure the effects of aid on trade within a context which allows for the effects which the availability of other types of financing has on U.S. trade with the aid recipient. It is clear, too, that countries with similar capacities to import, as measured by the real value of their foreign exchange resources, may differ considerably in the amount of imports purchased from the United States. The U.S. share of a country's market depends upon the many factors cited at the beginning of this section. A model relating U.S. exports to aid must explicitly consider both the total capacity to import of aid recipients and the key variables which determine how a given capacity is allocated among competing exporters. We are seeking to measure, in other words, the impact of aid on U.S. exports while holding constant the effects of other influential variables.

Foreign Exchange Supply

The term "capacity to import," though useful, is somewhat misleading. It seems to imply some amount of foreign exchange resources which accrues to the spending units of a country prior to their decision to import. It is frequently used in connection with total earnings from exports plus net inflows on long-term, or stable, capital account. Such a sum is also thought of as an "autonomous" flow of foreign exchange resources. However, the

spenders of foreign exchange (importers and capital exporters) and the recipients of foreign exchange (exporters and capital importers) are apt to be entirely different parties. For the country or group of countries as a whole, therefore, the ex ante demand for foreign exchange may exceed or fall short of the autonomous supply of foreign exchange.

The balancing mechanism is provided by the variety of official and private financial institutions which are part of the foreign exchange market. If the demand for foreign exchange exceeds the autonomous supply, for example, (and assuming that exchange rates are not flexible) attempts will probably be made to choke off the excess demand by rationing scarce foreign exchange resources, tightening up direct and indirect controls over trade and payments, perhaps by internal deflation. Because these devices are neither perfectly timed nor completely effective, however, supplementary means of financing the deficit must be sought. We may identify three main sources of compensatory (or accomodating) financing: (1) Official gold and foreign exchange reserves; (2) The IMF and other international or foreign lending agencies; and (3) short- or intermediate-term credit extended by foreign financial and commercial interests. By definition the volume of this type of financing which is utilized depends upon the size of the deficit.

It is evident that such financing can be resorted to only temporarily and to a limited extent. Yet because U.S. trade with low-income countries in any year may be significantly affected by the total use of these types of financing, the foreign exchange supply concept which we want to use in our empirical work should, for the sake of statistical accuracy, include both autonomous

receipts and compensatory financing. Ideally we would like to measure the former by summing gross receipts from exports of merchandise and invisibles, long-term private and official capital inflows such as foreign direct investment, sales of securities to non-residents, and loans from foreign banks and other lending agencies, and private and official transfers. Compensatory financing would include short-term credits, drawings on the IMF, and changes in official reserves of gold and foreign exchange. However, because of the inadequacies of existing data for the low income countries we were unable to follow the ideal plan of measurement. We chose instead to construct approximations to these flows.

To measure autonomous foreign exchange receipts for a given year we begin with total imports of the country or group of countries, add net additions to official reserves or subtract net drawings on official reserves, and further subtract gross drawings on the IMF. It is apparent that the result is more properly regarded as an approximation to the amount of autonomous foreign exchange receipts <u>available to importers</u> during the year rather than to gross autonomous receipts. We have in effect subtracted from gross autonomous receipts all uses of foreign exchange other than imports, such as private capital exports, net additions to non-official reserves, repayments of international loans and the like. In other words, we assume that importers in these countries will utilize all of the foreign exchange that is not preempted by other users.

Data is readily available on IMF drawings and changes in official reserves. It is not possible, however, to measure the net short-term private credits utilized by a country's importers

for a given year. Hence our measure of compensatory financing excludes private short-term capital inflow and is thus limited to official financing. Short-term capital flows can be assumed to be incorporated in our approximation to autonomous receipts. This is admittedly an unsatisfactory solution to the problem; it is really no solution at all. To have chosen, however, to try and measure private short-term capital movements in order to obtain a more satisfactory approximation to compensatory financing would have sharply narrowed the geographical scope of the study and restricted the value of our conclusions with respect to the role of aid in the U.S. balance of payments problem.

To summarize the preceding discussion, we have sought to arrive at an empirical measure of the supply of foreign exchange resources available to low income countries. We have endeavored to include both autonomous receipts--which, when deflated by a relevant international price index, can be termed the capacity to import--and compensatory financing. Our empirical approximation to the former is more accurately viewed as foreign exchange available to importers. It is in effect the sum of current account receipts, imports of both short-term and long-term private capital, receipts of official capital other than IMF drawings, including U.S. economic assistance loans, and inflow of transfers and gifts including U.S. economic assistance grants, from which has been netted all uses of foreign exchange other than imports and additions to official reserves. Compensatory financing consists of drawings on the IMF and reductions in official gold and foreign exchange reserves.

The Determination of Market Shares

There is no basis for presuming that a simple proportional relationship exists between the volume of foreign exchange resources available to a country and the amount of these resources used for imports from the United States. This is true whether we are considering interregional or intercountry variations at a given point of time or the relationships of aggregates over time. We have stressed the complex nature of the interactions which determine market shares. A rather elaborate theoretical model would be required to describe this process adequately. Such a model would be difficult if not impossible to handle statistically.

In lieu of an elaborate theoretical treatment we adopted an expedient which permits us to measure the export-generating effects of aid with readily available data and a manageable statistical model. The U.S. share of a country's market during a given period reflects the collective influence during that period of the many variables which effect trade patterns. Such a market share can, therefore, be used as a proxy for those variables, which we are unable to handle separately. By so doing we will at least be able to obtain statisitcal control over their joint influence.

Which market share is relevant? We cannot use the U.S. share of the market for the same period in which the foreign exchange flows take place, since this share is, in effect, being estimated. Rather, we relate current expenditure patterns to their underlying determinants by relating them to past expenditure patterns. It may be objected that a lagged market share does not completely represent all of the influences operating currently, since condi-

tions change from year to year. As we shall see shortly, however, the specific equations we have chosen to estimate allow for the effects of changing circumstances.

In our computations we have used two different market shares alternatively. We use the U.S. share of a country's total imports for the previous year, i.e., a one-year lagged share. This share reflects the most recent factors affecting U.S. trade, including those which may be transitory or reflective of trend. The second share we use is the average U.S. share in the country's market for 1949-1953. This variable is intended as a proxy for the longer run or more permanent factors governing post-war U.S. trade with low income countries. It was during this period that post-war economic dominance along with political and diplomatic involvements enabled the United States to establish new markets and open new trade channels. The average share established by the United States in the low-income countries as a whole during this period has changed relatively little since then. We will show later how comparisons between results using these two shares yields some interesting conclusions concerning the effect of aid on U.S. trade.

We have thus asserted that U.S. exports to low income countries are a function both of their capacity to import, supplemented by compensatory financing, and of variables which determine how a given capacity shall be allocated among competing suppliers. We states in Section 1, however, that we were interested in testing the hypothesis that aid expenditures and other foreign exchange earnings are not perfect subtitutes in financing imports from the United States. We want to distinguish between the effects on U.S. exports of aid and the other foreign exchange receipts in-

cluded in total autonomous financing.[1] But if we justify one such distinction, why not others? We might distinguish between convertible and inconvertible currencies, or between actual earnings of foreign exchange and credits. The chief handicap is, again, inadequate or non-existent data. There is no direct way of determining what proportion of a country's exports was sold for dollars or other hard currencies. Estimation of changes in a country's short-term assets abroad resulting from trade cannot be made with existing data. Perhaps the best we can do is preserve the distinction between compensatory and autonomous financing. Compensatory financing will have an exceptionally high hard currency content. It may well by used by countries facing continual shortages of such funds to maintain or increase absolute levels of trade, particularly with the United States, rather than to preserve a given pattern of trade. In other words, a country will allow its official reserves to substitute for foreign exchange of partial convertibility/in to only a limited extent financing trade with non-industrial countries or countries whose exporters do not consistently demand settlement in dollars.

The Model

Our next task is to provide a specific form for our hypothesized functional relationship between U.S. exports, the components of foreign exchange supply, and the variables determining trade patterns, for which market shares will serve as proxies. We may

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1. Though many aid agreements have constituted, in effect, supplementary financing for actual or anticipated deficits, the bulk of aid which is expended is more properly regarded as autonomous to the recipient.

frame our phypthesis as follows: the propensity to spend foreign exchange resources on imports from the United States is a function of the U.S. market share of the previous period, or of 1949-1953. If this function is assumed to be linear, our hypothesis is derived from the following simple equation:

$$E = a_1F \quad a_2F \cdot S$$

where E represents U.S. exports during a specified time period to whatever country or group of countries we may be interested in, F is their total foreign exchange resources, and S is the particular market share we choose to use. The derivative of E with respect to F is easily seen to be a linear function of S.

By dividing F into economically meaningful categories as we have proposed above--aid, A; autonomous financing, O; and compensatory financing, C--we expand the number of variables in our equation as follows:

$$E = a_1A \quad a_2O \quad a_3C \quad b_1A \cdot S \quad b_2O \cdot S \quad b_3C \cdot S$$

Our variables are flows and cross products of the flows and the market share proxy variable. Positive values for a_1, a_2 and a_3 can be interpreted as indicating the proportions of the foreign exchange flows spent on U.S. exports apart from the influences incorporated in the market shares. Since the market shares we use are lagged, the flow coefficients reflect the extent to which current expenditure patterns are systematically influenced by current developments. The magnitudes of the cross product coefficients reflect the extent to which current expenditure patterns are dependent upon the patterns indicated by the values of the market shares. A cross product coefficient of unity would mean, for example, that the proportion of the particular type of foreign

exchange spent on U.S. merchandise equalled the overall U.S. share of the market for the previous year or for 1949-1953.

Because we are using two different market shares, we have in effect two different models. The significance of the distinction will be made clear in what follows.

b. Statistical Problems

An evaluation of the conceptual issues involved in measuring the demand for United States exports generated by U.S. economic aid expenditures led to the development of a single equation model with six variables. We did not adopt this model before giving a good deal of advance consideration to the kind of data to be used in estimating its parameters. It appeared that the most satisfactory results would be obtained from using cross section data for given years, with the individual country as the unit of observation. In this section we will explain our decision to use a cross section approach and discuss the technical problems involved in estimation using cross section data. We will present our final statistical models, along with preliminary remarks concerning the interpretation of our results.

Selection of a Unit of Observation

Estimation of economic relationships using time series data is frequently hampered by violations of the basic assumptions on which the correct application of multiple regression techniques depends. The most common violations are a lack of independence among successive error terms and collinearity among independent variables. In addition, a sufficient number of observations may not be available on a time series basis. Moreover, the ranges of magnitude of the time series variables may be too narrow to permit successful estimation of the coefficients.

In contemplating the use of time series data to estimate the coefficients of our model, it was clear that most of these problem existed to at least some degree. But perhaps a more compelling reason for rejecting a time series approach was provided by the

nature of the issue under investigation. The relationships we are seeking to measure represent propensities to spend various categories of foreign exchange on imports from the United States. There is no reason to suppose that these coefficients are stable from year to year. In fact we are trying to discover if changes have occurred in the propensity to utilize U.S. aid to increase imports from the U.S. as a result of the tied aid policy. Moreover, as competitive conditions have changed with the rapid economic growth in Japan and Western Europe, and as the currencies of these countries have become progressively more acceptable in settling international debts, we may expect changes in patterns of foreign exchange use. Under these circumstances cross section estimates obtained year by year appear to constitute the most valid and interesting results.[1]

Though the problems which discourage time series analysis may be absent or less severe in cross section studies, however, equally challenging difficulties may arise. In many applications a skewed distribution of sample data will lead to extreme observations and distortion of the estimates. When this occurs, error terms are more likely to be heteroscedastic. A model which is appropriate for time series data, which is typically aggregated, may require considerable modification when used with disaggregated cross section data. Some factors which vary only over time can be eliminated. Other variables, which are important aspects of interindividual differences, may have to be included. Inability to include the appropriate modifications may mean a faulty specification and serious bias in the resulting coefficient estimates.

1. The fact that coefficients can be expected to vary from year to year makes the pooling of several years' data a questionable procedure, even with the use of dummy variables defined on time peri Because of the implicit weighting of the evidence inherent in ordina least squares estimation procedures, parameter estimates based on p data may be biased if the true values of the parameters are not the in all periods.

The sample of countries used in our computations was fairly evenly distributed with respect to the flow of autonomous foreign exchange. Though small countries predominated, a satisfactory number of medium and large countries was included. The distribution was much less satisfactory with respect to aid. Many countries receiving small amounts of assistance were included, as compared to relatively few recipients of large amounts. This situation reflects, of course, the actual distribution of United States assistance among low-income countries. However, the addition of export-Import Bank loans to the aid totals smooths out the distribution considerably, since many countries that have borrowed extensively from the Eximbank, such as the countries of Latin America, have not received much economic aid under ICA-AID programs.

If the distribution of the sample with respect to all variables was markedly skewed, an appropriate weighting of the data would be recommended. The influence of extreme observations and problems of heteroscedastic error terms could thereby be mitigated. It has been shown that the deflating variable should be homogenously related to the main variables.[1] Finding such a deflator in our case would be difficult if not impossible. For example, one likely candidate, population, is homogeneously related to autonomous foreign exchange and probably also to compensatory financing, but not to aid expenditures. The largest amounts of aid typically do not go to countries with the largest populations. Nevertheless,

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1. John R. Meyer and Edwin Kuh, The Investment Decision, (Cambridge: Harvard University Press),1959), pp. 261-265.

we attempted to estimate the coefficients of the lagged share model with 1960 data weighted by population. The results, though statistically interesting,[1] cannot be accurately evaluated until further empirical and analytical work is undertaken.

As we have suggested above, cross section and time series data may not be interchangeable in estimating the parameters of a model. Models intended for use with disaggregated cross section data must include enough variables to render the units of observation relatively homogeneous, save with respect to the values of the included variables. If this cannot be accomplished, parameter estimates will be biased, except in the fortuitous case that all omitted variables are uncorrelated with all included variables. We have attempted to achieve the desired homogeneity by using the U.S. share of the country's market as a proxy for the variables which determine trade patterns. Within any year, however, factors apart from those assumed to be incorporated in the market share may influence the demand for imports from the United States out of a given volume of foreign exchange resources. Moreover, though a country's imports from the U.S. may be predominantly determined by the variables we have chosen to include, each may behave somewhat differently with respect to them. It was our feeling that the most important of these influences would be regional in nature, with differentials being most notable among currency areas. There-

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1. In the absence of a sound weighting scheme, we attempted to determine whether the regression coefficients calculated for aid expenditures were due solely to the influence of a few large aid countries. Regression coefficients for 1958 through 1961 were computed using a sample of 38 countries, with four of the largest aid recipients (Viet Nam, South Korea, Taiwan and Turkey) not included. In only one instance out of eight was the magnitude of the aid coefficient appreciably different from that obtained with a full sample of 42 countries.

fore, we attempted to sharpen parameter estimates by filtering out particular developments in the two main currency areas: the dollar area and the sterling area. We included dummy variables defined on this regional distinction and added a general constant term as well.

Methods of Estimation

Ordinary least squares estimation procedures were used to carry out the bulk of the computations in this study. Earlier in this section, however, we noted that autocorrelated disturbances represented a serious problem in many time series applications. Though we have avoided this type of autocorrelation by using cross section data for given years, it is clear that the error terms for successive cross section regressions will be correlated. Under these circumstances, parameter estimates which are better than those derived by applying ordinary least squares to successive sets of cross section data can be obtained. The technique, developed by Arnold Zellner,[1] is based on an application of Aitken's theory of generalized least squares.

If we have a model which is to be fitted with several sets of observations, ordinary least squares (OLS) estimates derived equation-by-equation may not be the most efficient which can be obtained. If the disturbance terms of the separate regressions are correlated, the elements of the inverse of the covariance of calculated residuals matrix, computed from the separate sets of OLS estimates, can be used to weight the moments matrices of sample

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1. See Arnold Zellner, "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias," Journal of the American Statistical Association, Vol. 57 (June 1962), especially pp. 349-354 and sources cited therein.

observations. A second stage computation based on the weighted moments will produce estimates with standard errors which are; depending upon the extent to which sample residuals are correlated, lower than those of the corresponding OLS estimates.

This technique cannot be used with models which include lagged endogenous variables. Since the lagged U.S. market share is in effect such a variable, the use of Aitken estimators in models using this share is ruled out. Equations involving the average U.S. share for 1949-1953 are, however, amenable to the use of this technique. In fact, the extent of correlation among the residuals of successive years ought to be greater with the average share than with the lagged share. Omitted influences in the former case include factors which bring about year to year variations in U.S. market shares. If such factors are persistent, error terms in successive periods ought to be similarly affected. We shall, therefore, derive both OLS and two-stage Aitken estimates for these equations using the average U.S. market share.

Interpretation of Cross Section Results

With respect to estimates derived from cross section data, the question has been raised as to just how these estimates would compare with an equivalent set derived from time series data. Time series estimates are frequently said to be "short run" estimates, whereas cross section estimates are more likely to represent longer run adjustments. Comparability can be increased by the explicit inclusion in cross section models of variables which tend to remain constant or change only slightly during the tenure of a time series study. We have achieved this in large part by using the market proxy variable, which has tended to exhibit relatively small

fluctuations for the low income countries as a whole during the period covered by the study. Hence we can regard our estimates as relatively short run, representing mainly the expenditure of the aid funds themselves, rather than as long run coefficients which account for the integration of aid financed activities into the domestic economy. We shall have more to say on this question, however, when comparing the results from lagged and average share models.

Despite the advantages of using cross section data, one problem remained which prevented our using the model to generate the full variety of information we had hoped for. In our sample of data, the aid flow and its cross product are highly correlated. The simultaneous use of these collinear variables leads to undesirably large standard errors for their parameter estimates, and the results cannot be accurately evaluated. However, by using these two variables alternatively--i.e. by obtaining parameter estimates using first the flow, then the cross product, with the remaining variables--we can generate, for any year, a range of values for the share of U.S. exports in aid financed trade within which the "true" value of this share can be expected to lie.

It can be shown that if a model excludes a variable which is correlated with an included variable,[1] the expected value of the estimated coefficient for the included variable will equal its true value plus a factor, k, times the value of the parameter for the excluded variable. This factor k is in fact the regression coefficient of the excluded variable on the included variable.

1. We assume that there are no other intercorrelations among independent variables.

In applying this analysis to the case of excluding the cross product corresponding to a flow which is included, we can show that the factor, k, is the weighted average of the particular market share being used, with the weights proportional to the sum of the squared values of the flow. The parameter we estimate may, therefore, be assumed to approximate the impact on U.S. exports of an aid dollar distributed among the recipients in the same proportions that prevailed in the year for which the estimate was made.

When the flow is omitted and the cross product retained, the resulting coefficient can be used to arrive at another estimate of the impact of a dollar of aid expenditures on U.S. exports. To obtain this estimate we multiply this coefficient by the sum of the cross products for the countries in the sample and divide by the total aid expenditures in these countries.

The two estimates we obtain for the share of U.S. exports in aid-generated trade will not be the same. Which is the better estimate? We can show that both estimates are in fact biased. It cannot be ruled out a priori that both are biased in the same direction. We can, however, derive a set of characteristics of the sample data which would guarantee that they are biased in opposite directions, i.e. that the "true" value of the share lies in between the pair of estimates we obtain by alternative use of flow and cross product. We verified that these characteristics prevailed in the 1956 data and undoubtedly prevail in all of our data samples.

As we have indicated, the estimated shares of U.S. exports in aid-generated trade are best interpreted as reflecting the particular geographical distribution of aid for the year in question.

Changes in these shares over time can be attributed to changes in the relative distribution of aid as well as to changes in the propensity to spend aid on U.S. goods. (The same holds true for estimated shares of U.S. exports in trade financed by autonomous receipts and compensatory funds, though the effects of changes in distribution in these cases can be determined.) This hampers the use of these shares for predictive purposes. Other evidence would be required concerning past changes in distribution among regions or countries with widely different trading relations with the U.S. plus forecasts of future changes.

c. Sources of Data

Because we chose to use cross-section data, the criterion for selecting data sources for our variables was intercountry comparability. This ruled out complete reliance on individual country reports, since countries use different principles of measurement and classification for the variables in which we are interested. Instead of using each country's trade returns as the source for their imports from the United States, for example, we have chosen to use as the dependent variable U.S. exports to the aid recipient as recorded by U.S. sources. For the years prior to 1960, the source was the Bureau of the Census' Quarterly Summary of the Foreign Commerce of the United States. Fore 1960 and 1961, data were obtained from the United Nations' Direction of International Trade, annual issues. The data for 1962 were derived from U.S. export figures as found in U.S. Exports of Domestic and Foreign Merchandise, country of destination by subgroup by commodity, prepared by the U.S. Department of Commerce, Bureau of the Census, Foreign Trade and Economic Operations Division.

The source of data used in constructing the figures for autonomous receipts was International Financial Statistics. From this publication we obtained data for total imports by country (from the world trade table), beginning of period and end of period official gold and foreign exchange reserves, and drawings from the IMF.

Data on U.S. aid expenditures and Export-Import Bank loans is taken from the U.S. Department of Commerce, Office Business Economics, Foreign Grants and Credits of the United States Government, the December issues. We included in economic aid Mutual

Security Program grants from Table 3 and Mutual Security Program loans from Table 6. (In 1961 this terminology was changed to "American Aid" in each table). Export-Import Bank loans are also recorded in Table 6. These figures are recor according to the following principles by the OBE: "The meaure of the transfer abroad generally is the dollar equivalent of (1) goods delivered or shipped by the U.S. Government, (2) services rendered by the U.S. Government, or (3) cash disbursed by the U.S. Government to or for the account of a foreign government or other foreign entity.... Data are frequently adjusted by the Office of Business Economics to report transactions at the time they actually occur, rather than at the time the transactions are recorded on the books of the operating agency."

Average and lagged shares are computed from ratios of U.S. exports to the countries to their total imports as shown in IFS.

Data were collected for thirty-eight low-income countries which were independent in 1954. To have added countries as they became independent would have meant that successive yearly estimates would not have been strictly comparable.

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Section 4

Aid and U.S. Exports: Empirical Results

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Section 4

Aid and U.S. Exports: Empirical Results

A. Introduction

Our principle conclusions concerning the effectiveness of the tied-aid policy are based on parameter estimates obtained by using data for thrity-three countries for each of the years from 1959 through 1962.[1] A discussion of these results and their implications is contained in part B. of this section. Parallel computations were made for each of the years from 1954 through 1961 using a group of thirty-eight countries. They provide a broad view of the role played by economic aid in increasing U.S. exports during a period in which conditions in the international economy were undergoing considerable change. These results are discussed in part. c.

In the preceding section we explained the necessity for using the aid flow variable and its cross product alternatively rather than simultaneously. For this reason we have computed two separate estimates for each year and for each model of the share of U.S. exports in the trade generated by U.S. aid expenditures in the included countries. Because of certain characteristics of the sample data, these two estimates may be assumed to bracket the "true" value of this share. In the remainder of this section, the estimated U.S. share of aid-financed trade is presented as a range of values rather than as a single point estimate.[2]

[1] A list of countries used in our calculations is found in the Appendix.

[2] It should be stressed that the range of values does not constitute a confidence interval. Nor have we performed tests to determine whether the upper and lower values differ significantly from one another.

We also pointed out that the U.S. market shares calculated for aid should be interpreted as estimates of the demand for U.S. merchandise per dollar of aid based on the particular distribution of aid amoung countries and programs which prevailed in the year for which the estimates were obtained.

B. Results: 1959-1962

The size of the group of countries from which our 1959-1962 estimates were derived was determined by the availability of published data for 1962 on gold and foreign exchange reserves and on total imports and exports. The period covered includes the two years immediately prior to the adoption of the tied aid policy for non-development loan aid and the two full years during which the policy has been in effect. However, the year 1961 should properly be considered as a transition year, since a significant volume of funds was still being disbursed under commitments entered into prior to the effective date of the tied aid policy. Other peculiarities affecting the results for 1961 will be discussed in greater detail below.

1. Results: One-year lagged share model

The regression results for the equations using the U.S. market share of the preceding year as the composite proxy variables are presented in Appendix Tables A-1 and A-2. Part A of each table consists of the estimates obtained with Export-Import bank loans excluded from the aid figures. The estimates in part B are obtained with aid and Eximbank loans lumped together. The models had a uniformly high degree of explanatory power, as indicated by the values of $\bar{R}^2$, though, as we suggested earlier, the importance of this finding with unweighted data should not be overem-

phasized.[1]

The aid coefficients in all but two instances---both for 1961 computations---satisfy the usual tests of significance (at the 1% level). The implications of these results are more clearly evident in the figures presented in Table 4-1. The figures are calculated in the manner described in section 3-b above.

For 1959 between 27 per cent and 38 per cent of U.S. aid funds resulted in U.S. merchandise exports in the same year. The estimated range of possibilities encompassed generally higher values for 1960, i.e., 37 per cent and 48 per cent. The results for 1961, the year in which the tied aid policy was becoming effective, suggested a drop to 23 or 24 per cent. However in 1962, the first year in which the tied aid policy was virtually fully effective, a notably higher range of values resulted. These figures for 1962 suggest that over half and perhaps nearly two-thirds of U.S. aid expenditures in the sample countries resulted in U.S. merchandise exports. (except for pipeline)

The results when Export-Import Bank loans are lumped together with aid present a similar picture. The main difference is that the figures for 1961 do not decline so sharply from their 1960 values and, in fact, are higher than those for 1959. These results imply that about 60 per cent of Eximbank Loans in 1961 financed increased imports from the United States; that is, a dollar's worth of Eximbank loans under the conditions prevailing in 1961 was more than twice as productive of U.S. exports than a dollar of economic aid.

1. The few experiments conducted with weighted data (see section 3-b) yielded $-\bar{R}^2$'s and F ratios higher than those obtained with unweighted data.

During the year in which the tied aid policy was almost fully effective, 1962, the demand for U.S. exports per dollar of aid was higher than in any of the three preceding years. This result alone is consistent with the view that tying aid has been successful in raising the total demand for U.S. merchandise by aid recipients. The results for 1961, however, indicate that economic aid in that year was less effective in raising the demand for U.S. exports than in previous years, despite the fact that a good part of the aid was tied.

One possible explanation for this result is the sharp increase in cash transfers during fiscal years 1961 and 1962. As we have previously indicated, it has been difficult to develop satisfactory procedures for restricting purchases financed with these funds. Countries may have taken advantage of this administrative lag to utilize these funds in ways which would be proscribed once effective procedures were implemented. Moreover, the disbursement of such funds may have been recorded well in advance of their actual use. Hence they may have financed temporary additions to reserves. For these reasons, U.S. aid expenditures in 1961, more highly weighted with cash transfers, would not appear to have benefited U.S. exports as much as they had before and after 1961.

A second contributory factor may be the decline of the Far East relative to the Near East and South Asia in aid expenditures for 1961. United States competitive strength in the latter areas is lower than in the aid receiving countries of the Far East, and increasing the relative importance of NESA countries would tend, ceteris paribus, to lower the estimated coefficients.

A final conjecture is that countries which were still receiving aid under commitments made prior to the effective date

Table 4-1

Impact of Aid on U.S. Exports: Lagged Share Model, 1959-1962

(per cent)	Aid	Aid Plus Eximbank Loans
1959	27.3-37.7	27.6-34.4
1960	37.0-48.3	36.7-49.1
1961	23.2-24.4	36.9-36.9
1962	53.4-67.8	48.8-62.5

of the tied aid policy utilized the funds predominantly for purpses other than importing from the United States while the opportunity was still available.

We tend to discount, therefore, the 1961 results as being indicative of the success or failure of the tied aid policy. The fact that 1962 figures showed a definite increase over previous years in the amount of U.S. exports generated by aid is more likely to reflect the effects of the policy. Virtually all aid disbursements were tied to U.S. or limited free world sources. There were no clear-cut changes in the pattern of aid disbursements which would indicate that the figures reflect changes in distribution. Nor did overall U.S. market shares show any decided increases, a fact which might be expected to show up in the figures as was the case in 1957 (See part c below). We conclude that the results point rather strongly to the success of the tied aid policy.

We have previously indicated that tying aid could succeed only if the opportunities to substitute restricted-use aid for other foreign exchange in financing normal imports from the U.S. were limited. This is in fact the case for countries such as South Korea, Iran, Pakistan, Jordan, Taiwan and Turkey. Since the weight of such countries in our calculations is relatively heavy, we may expect the aid coefficients, which refer to an aggregate aid dollar distributed in the same manner as in 1962, to increase in magnitude. Moreover, in other countries, in which the scope for substitution is not obviously limited, many of the institutional factors discussed in Section 2 may operate to shift trade preferences in favor of the United States. Aid, in other words, may be in effect heterogeneous with respect to the rest of a country's

foreign exchange resources. Because of this, aid may be considered to play an active role in shaping trade patterns rather than a merely passive role in financing them.

One interesting implication of the results is that the increased demand for U.S. exports associated with Eximbank loans apparently does not differ materially from that associated with economic aid, with the exception of 1961. The use of Eximbank loans has always been limited to financing imports from the United States. Our results suggest, however, that a dollar's worth of Eximbank loans increases U.S. exports by considerably less than a dollar. This implies that the loans, though tied, are nevertheless substituted for other foreign exchange earnings by the borrower to a significant degree. (For more discussion of this point and some additional calculations, see Part B below.) It is interesting to note, in fact, that the implied share of U.S. exports in Eximbank-financed trade in 1962 is about 45 per cent, compared to 60 per cent in 1961. Thus, while the demand for U.S. merchandise arising from AID economic assistance rose rather sharply between 1961 and 1962, a similar comparison for Eximbank loans based on the lagged share model shows a decline. This does not, however, reflect a cause-and-effect relationship. The two types of funds are distributed to two different groups of countries, on the whole. Moreover, if tying one type of assistance changed the pattern of expenditure of another type, this situation should not be reflected in coefficients obtained from multiple regressions.

Considering the 1962 figures, why should Eximbank loans, which are 100 per cent tied to U.S. exports, be less effective in increasing U.S. exports than AID assistance, which is admittedly no more than

80 per cent tied? The answer lies in the geographic distribution of the two types of assistance. AID assistance tends to be concentrated in a relatively few countries, where it bulks large in their capacities to import. The scope for substitution in these countries is, as we have suggested, limited, and financial institutions are apt to be fairly primitive. Eximbank loans, on the other hand, are not so concentrated, nor do they play such an important role in the borrowers' overall capacities to import. Countries receiving these loans have typically had more sophisticated financial institutions than the countries receiving the bulk of AID assistance. Hence the scope for substitution is not especially limited and the liklihood that it will occur is high.

Our results indicate that the propensity to spend autonomous foreign exchange receipts on imports from the United States is a function of the U.S. share in the country's market of the preceding year. In 1960, however, factors other than those incorporated in the 1959 market share accounted for the expenditure of 10 per cent of these funds on U.S. merchandise. As ~~We shall see in discussing~~ can be seen in the 1954-1961 results, the degree of dependence on the previous year's share varies from year to year, as does the importance of factors not incorporated in that share. This is, of course, what we would expect, since market shares are ultimately dependent on the latent real, monetary and institutional variables, many of which change from year to year.

For each of our equations which incorporate the lagged share, we have used the regression coefficients to compute the share of U.S. exports in trade financed by autonomous foreign exchange resources. These figures are presented in Table 4-2. The figures

Table 5-2

Impact of Autonomous Foreign Exchange Receipts On United States Exports: Lagged Share Model, 1959-1962*

(per cent)	Eximbank loans included	Eximbank loans excluded
1959	29.7; 30.2	29.5; 30.1
1960	35.6; 36.3	35.2; 36.2
1961	30.6; 30.7	29.4; 29.7
1962	31.2; 33.0	30.2; 32.2

* The two figures in each column for each year represent estimates from equations in which only the aid variable was different.

indicate that, with the exception of 1960, approximately 30 per cent of these resources was spent on U.S. merchandise. This estimate is not appreciably influenced by whether we are using the aid variable or its cross product. It is interesting to note that removing Eximbank loans from this variable reduces its impact on U.S. exports, implying that a dollar's worth of these loans leads to a greater increase in U.S. exports than a dollar's worth of autonomous receipts.

In comparing the figures in Tables 4-1 and 4-2 it appears that the aggregate aid dollar is generally more productive of U.S. exports than the aggregate dollar's worth of non-aid receipts. The exception is 1961 for aid which excludes Eximbank loans. In 1962 aid may have been twice as productive of U.S. exports than other receipts. These comparisons must, however, be interpreted with caution. Part of the difference is due to market imperfections such as the institutional factors discussed in Section 2. Moreover, the aggregate non-aid "dollar" is not as hard as the aid dollar, hence is not as useful in financing trade with the U.S. How much these results may be influenced by differences in the relative distribution of the two kinds of foreign exchange cannot be ascertained, however. Hence we cannot say with certainty that the differences are due solely to market imperfections. Our feeling is, however, that imperfections are the major factor creating the differences. Aid and other foreign exchange resources are, apparently, imperfect substitutes in financing purchases from the United States.

It would be erroneous to conclude that we have shown that in a dispute over trade versus aid we have given aid the nod in its ability to influence favorably U.S. exports. One of the main

reasons for the fairly high proportion of U.S. trade generated by aid is the fact that most aid recipients do not export a great deal to the U.S. Their dollar-earning capacity is accordingly limited, and aid thus provides unique opportunities to purchase goods in the U.S. market. Trade and aid are, however, not really equivalent, as the phrase "trade versus aid" implies. Aid is a net addition to the recipient's current command over real resources, whereas trade represents an exchange of resources. Aid recipients are generally at a stage of development where they have an insufficient volume of resources to exchange.

The results for compensatory financing were too erratic to pursue here. Some promising results were obtained by using the Aitken estimation procedure, however, so we shall return to the role of this type of financing in the next part of this section.

2. Results: Average share model

A set of results parallel to those for the lagged share model was obtained using the average U.S. market share for 1949-1953. During this period post-war U.S. economic dominance contributed to the establishment of trade relations with the low income countries which, for these countries as a whole, have not been greatly modified since.[1] The 1949-1953 shares represent a longer term

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1. The proportion of total world exports to underdeveloped countries supplied by the United States were: for 1938--16.1%; for 1951--25.6%; for 1953--23.9%; for 1956--25.2%; for 1958--24.5%; for 1960--22.8%. Source: United Nations, Yearbook of International Trade Statistics 1960, p. 19. These figures are lower than the shares implied by our regression results because our group of countries excluded most of the countries of Africa and several in the Middle East which conduct only a small fraction of their trade with the United States.

share, which is unaffected by year-to-year fluctuations of a cyclical or emergency nature. The yearly differentials between the lagged share and the average share--or rather the underlying variables which caused them--represent in effect omitted influences. Regression coefficients obtained using the average share do not have these influences "held constant." If these market share differentials tend to be correlated with included variables, results from using the average share ~~will~~ may differ from those using the lagged share.

We are particularly interested in differences in the U.S. share of aid-financed trade computed from models using the two shares. The regression results for the average share models are presented in Appendix Tables A-3 ~~and A-4. Line A contains the ordinary least squares (OLS) estimates; line B contains the two-stage Aitken (TSA) estimates~~ through A-6. U.S. shares of aid-financed trade computed from these regression results are presented in Table 4-3. OLS estimates are those based on coefficients obtained by ordinary least squares procedures; TSA estimates are those based on two-stage Aitken estimates.

Comparing the figures in Table 4-1 with those in Table 4-3, aid appears to generate more U.S. trade when the average market share is used. On the other hand, the same phenomenon is not apparent when comparing U.S. shares of trade financed by autonomous foreign exchange, as the figures in Table 4-4 and 4-2 indicate. Apparently those influences which we omit by using the average share rather than the lagged share are correlated both with aid and with U.S. exports, but not with other foreign exchange. We have said that the influence of the omitted factors is summarized in differences between the two market shares. Our results suggest that the larger amounts of aid are associated with increases in the one year lagged U.S. share of the country's market as compared

Table 4-3

Impact of Aid on U.S. Exports:
Average Share Model, 1959-1962

(per cent)		Aid	Aid Plus Eximbank Loans
1959	OLS	37.4-49.2	50.1-61.2
	TSA	35.1-47.2	40.2-52.0
1960	OLS	43.9-55.2	47.9-59.6
	TSA	41.8-56.0	43.2-60.6
1961	OLS	42.3-61.5	63.1-70.4
	TSA	42.9-56.2	48.6-57.8
1962	OLS	67.1-82.8	83.4-91.2
	TSA	61.5-78.0	62.7-77.2

Table 4-4

Impact of Autonomous Foreign Exchange Receipts
On U.S. Exports; Average Share Model, 1959-1962*

(per cent)		Eximbank Loans Included	Eximbank Loans Excluded
1959	OLS	30.3; 30.8	29.4; 29.8
	TSA	30.3; 30.6	29.9; 30.2
1960	OLS	35.4; 35.9	34.6; 35.4
	TSA	34.9; 35.3	34.3; 35.1
1961	OLS	31.4; 32.6	28.6; 30.0
	TSA	32.2; 32.9	30.7; 31.5
1962	OLS	28.4; 30.3	26.0; 26.5
	TSA	30.1; 32.6	29.5; 31.5

*See note to Table 4-2.

to the share characterizing the 1949-1953 period. Since levels of aid expenditure are generally maintained for more than one or two years, and since large absolute amounts of aid are generally large relative amounts as well, we believe that the aid program is in large part responsible for the favorable changes in U.S. market shares.

The economic meaning of the results can be interpreted as follows. Aid increases U.S. exports by providing countries with the means to finance additional purchases from the U.S. Estimates based on the use of the lagged U.S. share measure this impact. Aid, however, is not merely a gift of purchasing power, as we explained above. Because of the commercial and financial contacts with U.S. interests which it engenders, the influence of formal and informal contacts between U.S. and foreign officials, as well as imperfections in foreign exchange markets, aid has a positive effect on U.S.market shares. The estimates which are based on the use of the average share include the additional impact on the absolute volume of U.S. exports attributable to this latter phenomenon. Since it may take longer than a year for these influences to have full effect, we may regard the estimates derived with the use of the average share as measuring a longer-term impact of aid on U.S. trade.

Two sets of average share estimates are presented, one derived by the ordinary least squares procedure applied year by year and the other by the two-stage Aitken estimation procedure, which takes into account correlations among the error terms of the regressions for different years. The latter procedure has a marked effect in reducing the standard errors of the aid coefficients, with worthwhile reductions having been achieved in the standard errors of all

estimated coefficients. The Aitken procedure yields different values for the parameter estimates as well. Because the procedure is theoretically preferable to ordinary least squares and has a marked beneficial effect on the variances of the parameter estimates, we have formed our conclusions with respect to the average share model with these estimates in mind.

It is of particular interest to note the effect of using the two stage Aitken procedure to estimate the coefficients for compensatory financing. We have previously remarked on the lack of stability, to the extent of numerous sign reversals, and statistical insignificance of these coefficients when estimated using ordinary least squares procedures. The two stage Aitken estimates exhibit, in contrast, a notable stability from year to year. In few cases do the coefficients differ significantly from zero, yet in all cases the t statistic exceeds unity. We are unable, however, to provide reasons for this phenomenon, since they are rooted in aspects of the technique which have not yet been thoroughly explored.

The results suggest that though the use of compensatory financing is governed by past U.S. market shares, a significant portion of it finances trade with the U.S. apart from established trade patterns. This tends to confirm our previously expressed notion that compensatory financing would be used to sustain absolute levels of trade with the United States rather than maintain existing trade patterns.

In Table 4-5 U.S. shares of the trade financed by official reserves and IMF drawings are presented. Calculations are based on the Aitken regression coefficients. Though the regression coefficients from which the shares have been computed are relatively

Table 4-5

Impact of Compensatory Financing
On U.S. Exports: 1959-1962*

(per cent)

1959	59.7; 58.6
1960	122.1; 126.8
1961	45.1; 40.4
1962	48.2; 38.7

*See note to Table 4-2.

stable, the shares themselves show a good deal of variability. Nearly 60 per cent of official compensatory financing was associated with U.S. exports in 1959. That figure doubled in 1960, suggesting that countries financing their trade with the U.S. with reserves and IMF drawings were tapping other sources of funds as well. For 1961 and 1962, our results indicate that about 40 per cent of official financing was used to purchase U.S. goods. In all four years, this type of financing was used to sustain trade with the United States to a noticeably greater extent than autonomous receipts, confirming our expectation that these funds are not perfectly substitutable with autonomous receipts in financing trade with the United States.

It should be stressed, however, that these shares are based on regression coefficients which do not significantly differ from zero in a statistical sense. The results are best considered as suggestive rather than conclusive.

We have used the two stage Aitken results to perform some additional calculations. A breakdown of the U.S. share in trade financed in each of the three ways--aid, autonomous receipts, compensatory financing--was obtained for the main aid-receiving regions. These figures are presented in Table 4-6. We emphasize that the results for aid can be interpreted as longer term adjustments, allowing for the apparently beneficial effect which aid has on overall U.S. trade with the recipient. The results for autonomous receipts are virtually the same as those which would have been obtained using coefficients from the lagged share model. The results for compensatory financing probably fall into the same category as autonomous receipts, though this cannot be confirmed.

Based on these figures, it appears that aid is as productive of U.S. exports in the Far East as in Latin America. Less than

Table 4-6
U.S. Market Shares, 1961, by Region and by Type of Financing
(per cent)

Region	Aid	Autonomous Receipts	Compensatory Financing
Far East	63.9	35.4	75.8
Near East and South Asia	25.9	24.0	38.7
Africa	10.9	18.9	20.7
Latin America	64.9	41.3	39.3

half as much U.S. exports result from aid expenditures in the Near East and South Asia, and barely 10 per cent of aid to the few African countries in our sample generated U.S. exports. The result for the Far East is somewhat higher than we expected; on the whole, however, the results confirm a priori speculations concerning approximate orders of magnitude among the regions. The figures for autonomous financing reflect the differences in U.S. market shares in the respective regions. Comparing the two sets of figures it is apparent that aid is much more productive of U.S. trade in Latin America and the Far East than autonomous receipts. The result for Latin America is somewhat surprising, since the scope for substitution is generally a good deal higher in this region than elsewhere. We suspect that it reflects the fact that the assistance was still mainly technical assistance given to the countries with which we have the strongest trade relationships. In NESA and Africa, aid is no more productive of U.S. trade than the bulk of these regions' receipts, a result which probably

reflects a high rate of substitution of aid for other funds together with trade relations oriented toward Europe.

Compensatory financing sustained U.S. trade to the greatest extent in the Far East. Latin America and the NESA countries alike utilized these funds to finance U.S. exports to only about half as great an extent as the Far East. The lowest rate was evident in the African countries. It is difficult to evaluate these results, both because their statistical validity is questionable and because independent evidence concerning the impact of this type of financing on U.S. trade is lacking. The results are consistent, however, with the view that the expenditure of such foreign exchange resources is more independent of past trade patterns than that of autonomous receipts. The use of these funds is influenced more by official policies concerning priorities for imports, made operative through trade and payments controls, and the resulting "marginal" expenditure patterns, by source of supply, need not be similar to overall expenditure patterns.

We also used the average share coefficients to compute the implied share of U.S. exports in trade generated by Export-Import Bank loans. The results, for 1959-1962, are presented in Table 4-7. It is apparent that a high proportion of these loans leads to a net increase in U.S. exports. It is also clear that part of these loans substitutes for other foreign exchange, since these loans are nominally 100 per cent tied. We can arrive at a rough estimate of the extent to which Eximbank loans substitute for other foreign exchange resources as follows. We assume that the funds which are replaced by Eximbank loans are spent as autonomous receipts. For 1959, for example, at least 65 per cent of Eximbank

loans led to U.S. exports, We want to find the amount of these loans which had to be spent in effect as ordinary foreign exchange--30 per cent being used for purchases from the United States--in order for the U.S. share of trade generated by these loans to be 65 per cent. This amount divided by total Eximbank loan disbursements for the year will approximate that proportion of the loans which substitutes for other foreign exchange. Results of these calculations for the 1959-1962 period are presented in Table 4-8. These figures indicate that Eximbank loans have substituted for autonomous foreign exchange receipts in the last four years at rates which may have varied from less than 30 per cent to near 80 per cent, though the range is more likely to have ranged from 40 to 60 per cent.

Table 4-7
Share of U.S. Exports in Trade Generated by Eximbank Loans, 1959-1962
(per cent)

1959	65.2-82.1
1960	48.9-79.5
1961	58.5-60.6
1962	66.4-74.7

Table 4-8
Estimated Rate at Which Eximbank Loans Substitute for Autonomous Receipts
(per cent)

1959	26 - 50
1960	35 - 79
1961	56 - 58
1962	35 - 49

Countries have apparently not hesitated to apply for loans to finance "normal" purchases from the United States, with the proceeds being allocated as any other receipts, On the other hand, the figures in Table 4-7 suggest that Eximbank loans do sustain U.S. trade more than do receipts from other sources, including other U.S. economic assistance.

C. Results: 1954-1961

Parameter estimates for each of the years from 1954 through 1961 were computed using a sample of thirty-eight countries. The additional five countries include Indonesia, Iraq and Lebanon, which conduct between ten and fifteen per cent of their trade with the United States. They account for seven or eight times as much total trade as the other two countries--the Dominican Republic and El Salvador--which have relatively close trading relationships with the U.S.

Regression results for the lagged share equations (with Eximbank loans included in autonomous receipts) ~~are presented in Appendix Tables A-5 and A-6. The results~~ for 1959, 1960 and 1961 can be compared with the parallel computations using thirty-three countries, ~~presented in Appendix Tables A-1 and A-2~~. On the whole the coefficients for aid variables do not differ by much. U.S. shares of aid-induced trade computed from these coefficients are presented in Table 4-9. It can be seen that the results are

Table 4-9

Impact of Aid on U.S. Exports: Lagged Share Model, 1954-1961
(per cent)

1954	1955	1956	1957	1958	1959	1960	1961
34.0-42.9	32.3-44.0	43.9-53.4	54.8-67.5	32.7-50.1	26.9-37.6	38.0-50.3	19.9-22.1

virtually the same as those presented in Part B, with the exception of 1961, for which a somewhat lower U.S. share was obtained with the larger group of countries.

When comparing the regression coefficients for autonomous receipts, ~~it is evident that~~ differences are negligible. The U.S. shares of trade financed by these receipts, presented in

Table 4-10, are consistently lower than those computed on the basis of thirty three countries (Table 4-2) for the overlapping three years, reflecting the addition of three countries which purchase a low proportion of their imports from the U.S.

Table 4-10

Impact of Autonomous Foreign Exchange Receipts On U.S. Exports: Lagged Share Model, 1954-1961* (per cent)

1954	1955	1956	1957	1958	1959	1960	1961
30.0; 30.2	26.8; 27.2	35.1; 35.4	38.0; 38.3	35.7; 36.1	28.4; 28.9	34.9; 35.5	29.2; 29.4

*See note to Table 4-2.

The figures in Tables 4-9 and 4-10 suggest that throughout the period--with the exception of 1961--U.S. economic aid expenditures have been more productive of U.S. exports than other autonomous receipts. For several years, however, the differences may have been small. Because of the factors cited in Section 2, aid expenditures do have a net beneficial effect on U.S. trade as compared with the aggregate of other autonomous receipts. Part of this differential can be attributed to the fact that dollar assistance provides unique trading opportunities to the recipient and part is due to the direct and indirect constraints which the aid program imposes on the recipient. With the exception of 1957, the only year out of the last dozen in which the United States has had a balance of payments surplus, less than half of the aid has led directly to a net increase in U.S. exports to the recipients. The use of the average share model for the 1959-1962 period suggested, however, that a significantly

higher benefit to U.S. trade from the aid programs can be claimed if we allow for the effects over time which aid has apparently had in increasing the overall U.S. share in the recipients' markets. Moreover, prior to 1958, a large proportion of the aid initially spent in third countries probably returned to the United States via trade channels.

D. Comparison with Brookings Results

As we pointed out in Section 1, the Brookings Institution study on the U.S. balance of payments included an estimate that 53 per cent of the funds disbursed as part of U.S. economic aid programs in 1961 returned to the U.S. via trade channels. In what ways can the results which we have summarized in the preceding pages be compared to the Brookings estimate?

The models we fitted with data collected for a group of thirty-eight countries were designed to yield statistically valid measures of the relationship between U.S. aid and U.S. merchandise exports. Those aspects of the problem which required explicit treatment in the Brookings study, viz. estimating the rate of substitution of aid for other funds and determining the proportion of aid expenditures which represented dollar outflow, are dealt with implicitly in the approach we have followed. No specific assumptions have had to be introduced concerning these phenomena, yet their influence is fully, and more accurately, accounted for. On the other hand, we cannot use our results to evaluate the accuracy of the Brookings assumptions beyond comparing the end results

In& one important respect, however, the Brookings study goes

a step beyond what we have thus far presented, thus precluding a direct comparison of our results for 1961 with the Brookings estimate. Our model does not allow for the amount of aid initially spent by the recipients in third countries which is respent in the United States. We have used the results for the lagged share model for the years 1959-1962 to obtain estimates which allow for an additional round of expenditure. We assume that 50 per cent of the funds not spent in the U.S. is spent in countries which will use the increment in their foreign exchange earnings to buy additional imports. We further assume that 30 per cent of the increment is used to buy merchandise from the United States, a share which is taken from our regression results. These additional U.S. exports are added to the amount calculated on the basis of our regression results and new U.S. shares of aid-generated trade computed. These results are shown in Table 4-11.

Table 4-11

Estimated U.S. Shares of Aid-Generated Trade, Allowing for Third Country Effects (per cent)

1959	1960	1961	1962
38-47	46-56	35-38	60-73

For 1961 we estimate that 35 to 38 per cent of U.S. aid expenditures returned to the U.S. via trade channels, as compared to the Brookings estimate of 53 per cent. As we have previously noted, 1961 was a transition year, during which the tied aid policy was only partially effective. In addition, an unusually large amount of cash transfers occurred in this year. Aid recipient may also have taken the opportunity to utilize aid dollars in ways

that would thereafter be proscribed by U.S. policy. A larger implication of this particular result--in fact of all our results--is that the parameters relating aid to U.S. exports need not be stable from year to year. They may vary with competitive conditions, with the types of activities financed and hence the types of goods required, with balance of payments conditions in the aid receiving country, and with changes in policies or institutional arrangements. Perhaps the figures will be more stable under a sustained period of tied aid, but it is not yet possible to confirm or reject this possibility.

We present the figures in Table 4-11 as representing highly reasonable estimates of the impact which aid has had on U.S. trade during the previous four years. Similar adjustments could be made in all the figures we have presented. Assumptions concerning rates of expenditure in third countries trading with the U.S. could be varied and different sets of results obtained. It is our feeling that the assumptions required to fill out our regression results in the manner just described can be made with much greater confidence than the roster of assumptions required in the Brookings approach. Moreover the essential elements of our approach have a scientific basis insofar as the statistical techniques we have employed are valid in this application. Our approach reveals that the impact of aid, and of all types of foreign exchage receipts, on U.S. trade is the product of many complex factors. The fact that they vary from year to year means that simple extrapolations based on one year's experience are inappropriate.

APPENDIX

List of Countries
Included in Calculations

Argentina	Ethiopia	Libya
Bolivia	Greece	Mexico
Brazil	Guatemala	Nicaragua
Burma	Haiti	Pakistan
Ceylon	Honduras	Paraguay
Chile	India	Peru
China (Taiwan)	Indonesia*	Phillippines
Colombia	Iran	Syria
Costa Rica	Iraq*	Thailand
Dominican Rep.*	Israel	Turkey
Ecuador	Jordan	Uruguay
Egypt	Korea	Venezuela
El Salvador*	Lebanon*	

* Countries excluded from 33 country sample.

Table A-1

REGRESSION RESULTS: LAGGED SHARE MODEL USING AID FLOW VARIABLE, 33 COUNTRY SAMPLE

$$E_i = a_0 + a_1 D_i + a_2 T_i + a_3 A_i + a_4 F_i + a_5 F_i \cdot L_i + a_6 C + a_7 C_i \cdot L_i$$

Coefficient
(Standard Error)
t Statistic

Part A

Export-Import Bank Loans Excluded from Aid

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_2	a_3	$\bar{R}^2$
1959	.377	.018	0.857	.017	0.838	-4.51	15.84	1.37	.985
	(.112)	(.021)	(0.049)	(.245)	(0.561)	(9.55)	(12.73)	(14.38)	
	3.36	0.82	17.41	0.07	1.49	-0.47	1.24	0.10	
1960	.483	.118	0.782	.475	-0.232	-30.23	27.25	5.26	.989
	(.102)	(.018)	(0.051)	(.222)	(0.824)	(8.70)	(12.62)	(14.37)	
	4.76	6.42	15.36	2.14	-0.28	-3.47	2.16	0.37	
1961	.244	-.044	1.099	-.082	0.639	21.66	-20.81	-32.12	.987
	(.135)	(.027)	(0.066)	(.306)	(1.083)	(10.00)	(13.58)	(14.49)	
	1.81	-1.65	16.69	-0.27	0.59	2.16	-1.53	-2.22	
1962	.678	.049	0.836	.305	0.074	-20.13	20.11	15.16	.990
	(.090)	(.025)	(0.065)	(.272)	(0.967)	(9.01)	(11.50)	(14.19)	
	7.54	1.92	12.83	1.12	0.08	-2.23	1.75	1.07	

Table A-I

Part B

Aid Includes Export-Import Bank Loans

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	.364	.012	0.879	.076	0.688	-4.30	15.78	3.31	.985
	(.116)	(.021)	(0.051)	(.244)	(0.558)	(9.75)	(12.91)	(14.28)	
	3.15	0.53	17.20	0.31	1.23	-0.44	1.22	0.23	
1960	.491	.109	0.799	.486	-0.249	-29.57	26.85	5.98	.989
	(.104)	(.019)	(0.051)	(.221)	(0.821)	(8.53)	(12.48)	(14.08)	
	4.70	5.79	15.51	2.20	-0.30	-3.47	2.15	0.42	
1961	.369	-.073	1.164	-.212	1.162	20.28	-19.55	-33.50	.987
	(.117)	(.029)	(0.073)	(.308)	(1.085)	(9.84)	(13.75)	(14.47)	
	3.16	-2.53	15.94	-0.69	1.07	2.06	-1.42	-2.32	
1962	.625	.035	0.850	.266	0.100	-16.81	18.45	19.03	.988
	(.101)	(.029)	(0.073)	(.295)	(1.044)	(9.68)	(12.44)	(15.41)	
	6.19	1.21	11.70	0.90	0.10	-1.74	1.48	1.23	

E_i = U.S. Exports to Country i

D_i = 1 if Country i Part of Dollar Area

T_i = 1 if Country i Part of Sterling Area

F_i = Autonomous Receipts by Country i

A_i = U.S. Economic Aid Expenditures in Country i

C_i = Compensatory Financing Utilized by Country i

L_i = U.S. Share in Country i's Market, Preceding Year

S_i = U.S. Share in Country i's Market, Average of 1949-1953

Table A-2

REGRESSION RESULTS: LAGGED SHARE MODEL USING AID CROSS PRODUCT, 33 COUNTRY SAMPLE

$$E_i = a_0 + a_1 D_i + a_2 T_i + a_3 A_i \cdot L_i + a_4 F_i + a_5 F_i \cdot L_i + a_6 C_i + a_7 C_i \cdot L_i$$

Coefficient
(Standard Error)
t Statistic

Part A

Export-Import Bank Loans Excluded from Aid

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	0.787	.030	0.838	.064	0.737	-4.76	16.11	9.45	.986
	(0.212)	(.021)	(0.048)	(.238)	(0.545)	(9.15)	(12.27)	(13.86)	
	3.72	1.42	17.54	0.27	1.35	-0.52	1.31	0.68	
1960	1.164	.132	0.760	.513	-0.352	-32.54	28.86	16.91	.989
	(0.242)	(.018)	(0.051)	(.220)	(0.817)	(8.82)	(12.62)	(13.87)	
	4.80	7.16	14.89	2.33	-0.43	-3.69	2.29	1.22	
1961	0.762	-.037	1.081	-.176	0.951	20.19	-20.31	-28.61	.988
	(0.352)	(.026)	(0.065)	(.306)	(1.084)	(9.82)	(13.32)	(13.86)	
	2.16	-1.42	16.63	-0.58	0.88	2.06	-1.54	-2.06	
1962	1.718	.077	0.804	.498	-0.671	-25.09	23.55	34.21	.987
	(0.271)	(.028)	(0.073)	(.301)	(1.074)	(10.33)	(12.98)	(14.97)	
	6.84	2.73	10.96	1.64	-0.62	-2.43	1.81	2.29	

Table A-2

Part B

Aid Includes Export-Import Bank Loans

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	0.763	.029	0.845	.057	0.732	-4.18	15.44	8.99	.986
	(0.218)	(.021)	(0.052)	(.235)	(0.539)	(9.26)	(12.37)	(13.87)	
	3.50	1.35	16.37	0.24	1.36	-0.45	1.25	0.65	
1960	1.153	.134	0.753	.508	-0.335	-32.56	28.88	16.87	.989
	(0.251)	(.019)	(0.054)	(.222)	(0.827)	(8.82)	(12.68)	(13.90)	
	4.60	7.12	14.05	2.28	-0.41	-3.69	2.28	1.21	
1961	1.115	-.038	1.063	-.244	1.246	17.15	-17.58	-28.94	.988
	(0.314)	(.028)	(0.081)	(.297)	(1.048)	(9.69)	(13.34)	(13.88)	
	3.55	-1.34	13.12	-0.82	1.19	1.77	-1.32	-2.09	
1962	1.607	.078	0.778	.525	-0.796	-22.48	22.22	36.27	.986
	(0.298)	(.030)	(0.081)	(.313)	(1.117)	(10.67)	(13.56)	(15.67)	
	5.39	2.56	9.64	1.68	-0.71	-2.11	1.64	2.31	

For key to symbols, see Table A-1

Table A-3

REGRESSION RESULTS: AVERAGE SHARE MODEL USING AID FLOW VARIABLE, 33 COUNTRY SAMPLE

$$E_i = a_0 + a_1 D_i + a_2 T_i + a_3 A_i + a_4 F_i + a_5 F_i \cdot S_i + a_6 C_i + a_7 C_i \cdot S_i$$

Coefficient
(Standard Error)
t Statistic

Part A

Export-Import Bank Loans Excluded from Aid

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	.492	.059	0.705	.051	0.658	-8.42	6.09	-1.93	.983
	(.120)	(.020)	(0.043)	(.202)	(0.403)	(9.49)	(13.70)	(15.18)	
	4.10	2.90	16.26	0.25	1.63	-0.84	0.44	-0.13	
1960	.552	.180	0.522	.097	0.448	-34.66	30.73	10.90	.978
	(.141)	(.022)	(0.048)	(.155)	(0.658)	(12.57)	(18.22)	(20.14)	
	3.90	8.20	10.77	0.62	0.68	-2.76	1.69	0.54	
1961	.615	.096	0.646	.504	-0.569	-7.80	2.96	-0.40	.968
	(.213)	(.035)	(0.072)	(.218)	(0.890)	(14.96)	(20.62)	(23.59)	
	2.89	2.75	8.98	2.32	-0.64	-0.52	0.14	-0.02	
1962	.828	.095	0.557	.618	0.034	-15.39	9.11	18.91	.978
	(.137)	(.036)	(0.076)	(.207)	(0.958)	(12.67)	(17.43)	(21.38)	
	6.05	2.66	7.37	2.99	0.04	-1.21	0.52	0.88	

Table A-3

Part B

Aid Includes Export-Import Bank Loans

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	.612	.045	0.723	.111	0.577	-12.93	9.96	1.44	.987
	(.108)	(.019)	(0.039)	(.177)	(0.355)	(8.97)	(12.21)	(13.37)	
	5.67	2.42	18.33	0.63	1.63	-1.44	0.82	0.11	
1960	.596	.167	0.536	.105	0.457	-34.28	30.48	11.67	.979
	(.143)	(.023)	(0.049)	(.151)	(0.645)	(12.16)	(17.78)	(19.55)	
	4.18	7.36	11.05	0.70	0.71	-2.82	1.71	0.60	
1961	.704	.061	0.673	.525	-0.591	-6.03	3.33	3.46	.971
	(.170)	(.037)	(0.073)	(.207)	(0.856)	(13.94)	(19.76)	(22.67)	
	4.14	1.62	9.26	2.53	-0.69	-0.43	0.17	0.15	
1962	.834	.069	0.567	.543	0.098	-10.37	6.83	19.87	.977
	(.144)	(.040)	(0.079)	(.207)	(0.973)	(12.92)	(17.78)	(21.82)	
	5.78	1.71	7.16	2.63	0.10	-0.80	0.38	0.91	

For key to symbols, see Table A-1.

Table A-4

REGRESSION RESULTS: AVERAGE SHARE MODEL USING AID FLOW VARIABLE, 33 COUNTRY SAMPLE
TWO-STAGE AITKEN ESTIMATES

Coefficient
(Standard Error)
t Statistic

Part A

Export-Import Bank Loans Excluded from Aid

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2
1959	.472	.067	0.682	.164	0.606	-5.75	4.05	-4.81
	(.096)	(.018)	(0.041)	(.105)	(0.204)	(8.99)	(13.15)	(14.97)
	4.93	3.71	16.75	1.56	2.98	-0.64	0.31	-0.32
1960	.560	.180	0.505	.213	0.620	-33.57	28.32	11.36
	(.127)	(.022)	(0.047)	(.115)	(0.487)	(11.86)	(17.48)	(19.87)
	4.42	8.34	10.72	1.85	1.27	-2.83	1.62	0.57
1961	.562	.126	0.580	.202	0.606	-13.37	6.82	-4.94
1962	.780	.156	0.462	.256	0.768	-27.57	21.45	12.63
	(.124)	(.032)	(0.067)	(.168)	(0.767)	(12.13)	(17.09)	(20.84)
	6.27	4.91	6.91	1.52	1.00	-2.27	1.25	0.61

Table A-4

Part B

Aid Includes Export-Import Bank Loans

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2
1959	.520	.059	0.696	.243	0.451	-8.49	6.58	-2.49
	(.074)	(.016)	(0.037)	(.099)	(0.194)	(7.95)	(11.65)	(13.23)
	7.05	3.64	18.68	2.45	2.32	-1.07	0.56	-0.19
1960	.606	.170	0.517	.211	0.587	-34.03	29.21	11.14
	(.122)	(.022)	(0.047)	(.111)	(0.473)	(11.43)	(17.02)	(19.32)
	4.97	7.71	10.99	1.91	1.24	-2.98	1.72	0.58
1961	.578	.107	0.601	.198	0.604	-11.57	6.38	-3.12
	(.121)	(.028)	(0.061)	(.128)	(0.490)	(12.74)	(18.98)	(21.97)
	4.78	3.78	9.91	1.55	1.23	-0.91	0.34	-0.14
1962	.772	.140	0.459	.172	0.939	-23.78	19.90	12.54
	(.127)	(.035)	(0.070)	(.168)	(0.780)	(12.38)	(17.43)	(21.23)
	6.10	3.94	6.55	1.02	1.20	-1.92	1.14	0.59

For explanation of symbols, see Table A-1.

Table A-5

REGRESSION RESULTS: AVERAGE SHARE MODEL USING AID CROSS PRODUCT, 33 COUNTRY SAMPLE

$$E_i = a_0 + a_1 D_i + a_2 T_i + a_3 A_i \cdot \$_i + a_4 F_i + a_5 F_i \cdot S_i + a_6 C_i + a_7 C_i \cdot S_i$$

Coefficient
(Standard Error)
t statistic

Part I.

Export-Import Bank Loans Excluded from Aid

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	1.373	.072	0.687	.157	0.471	-9.79	6.10	12.38	.983
	(0.341)	(.021)	(0.043)	(.204)	(0.407)	(10.23)	(13.80)	(15.33)	
	4.03	3.51	15.82	0.77	1.17	-0.96	0.44	0.81	
1960	1.632	.190	0.506	.044	0.584	-37.70	31.00	33.81	.978
	(0.411)	(.022)	(0.048)	(.154)	(0.653)	(12.74)	(18.11)	(19.27)	
	3.97	8.74	10.54	0.29	0.89	-2.96	1.71	1.75	
1961	1.538	.122	0.605	.381	-0.269	-9.77	5.04	17.37	.966
	(0.645)	(.035)	(0.073)	(.220)	(0.919)	(16.27)	(21.64)	(24.52)	
	2.39	3.53	8.26	1.73	-0.29	-0.60	0.14	0.71	
1962	2.680	.123	0.532	.683	-0.452	-25.18	11.99	67.22	.967
	(0.663)	(.042)	(0.092)	(.259)	(1.224)	(16.10)	(21.34)	(24.66)	
	4.04	2.90	5.77	2.64	-0.37	-1.56	0.56	2.73	

Table A-5
Part B

Aid Includes Export-Import Bank Loans

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2	$\bar{R}^2$
1959	1.598	.076	0.646	.141	0.619	-12.74	8.46	14.80	.984
	(0.340)	(.020)	(0.047)	(.196)	(0.391)	(10.07)	(13.46)	(14.96)	
	4.69	3.72	13.81	0.72	1.58	-1.26	0.63	0.99	
1960	1.678	.194	0.478	.024	0.716	-37.37	31.07	32.94	.977
	(0.417)	(.022)	(0.050)	(.154)	(0.659)	(12.60)	(18.09)	(19.28)	
	4.02	8.69	9.50	0.16	1.09	-2.97	1.72	1.71	
1961	1.874	.137	0.488	.384	-0.277	-10.81	5.93	15.70	.970
	(0.467)	(.034)	(0.086)	(.206)	(0.861)	(14.41)	(20.11)	(22.94)	
	4.01	3.98	5.68	1.87	-0.32	-0.75	0.29	4.01	
1962	2.798	.121	0.447	.684	-0.576	-20.16	10.62	65.21	.968
	(0.686)	(.044)	(0.090)	(.253)	(1.221)	(15.50)	(21.09)	(24.41)	
	4.08	2.75	4.96	2.71	-0.47	-1.30	0.50	2.67	

For explanation of symbols, see Table A-1.

Table A-6

REGRESSION RESULTS: AVERAGE SHARE MODEL USING AID CROSS PRODUCT, 33 COUNTRY SAMPLE
TWO-STAGE AITKEN ESTIMATES

Coefficient
(Standard Error)
t Statistic

Part A

Export-Import Bank Loans Excluded from Aid

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2
1959	1.288	.073	0.073	.176	0.573	-5.69	2.88	9.54
	(0.270)	(.018)	(0.041)	(.106)	(0.204)	(9.03)	(13.19)	(15.02)
	4.77	4.05	16.48	1.67	2.82	=0.63	0.22	0.64
1960	1.556	.189	0.492	.217	0.645	-35.17	27.75	35.59
	(0.365)	(.021)	(0.047)	(.116)	(0.490)	(12.01)	(17.40)	(19.10)
	4.26	8.82	10.53	1.88	1.32	-2.93	1.59	1.86
1961	1.555	.141	0.558	.135	0.744	-16.04	7.09	14.86
	(0.498)	(.026)	(0.059)	(.114)	(0.433)	(14.15)	(20.50)	(23.43)
	3.12	5.37	9.48	1.18	1.72	-1.13	0.35	0.63
1962	2.454	.194	0.418	.226	0.546	-38.87	26.41	56.48
	(0.582)	(.037)	(0.079)	(.203)	(0.940)	(15.29)	(20.90)	(23.94)
	4.21	5.28	5.26	1.11	0.58	-2.54	1.26	2.36

Table A-6
Part B

Aid Includes Export-Import Bank Loans

Year	a_3	a_4	a_5	a_6	a_7	a_0	a_1	a_2
1959	1.285	.078	0.652	.183	0.553	-7.06	3.92	10.02
	(0.201)	(.018)	(0.041)	(.102)	(0.204)	(8.77)	(12.79)	(14.54)
	6.39	4.34	15.73	1.80	2.71	-0.81	0.31	0.69
1960	1.513	.193	0.472	.218	0.600	-35.08	27.98	34.86
	(0.355)	(.022)	(0.044)	(.119)	(0.508)	(11.93)	(17.41)	(19.09)
	4.26	8.82	9.69	1.84	1.30	-2.94	1.61	1.83
1961	1.444	.151	0.492	.163	0.642	-13.37	5.37	12.54
	(0.306)	(.026)	(0.065)	(.108)	(0.410)	(12.84)	(19.08)	(21.90)
	4.72	5.82	7.53	1.51	1.56	-1.04	0.28	0.57
1962	2.236	.203	0.330	.175	0.888	-33.11	23.63	52.80
	(0.589)	(.039)	(0.080)	(.206)	(0.981)	(14.94)	(20.71)	(23.82)
	3.80	5.24	4.11	0.85	0.90	-2.22	1.14	2.22

For explanation of symbols, see Table A-1.